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AMERICAN
DYESTUFF
REPORTER

VOLUME 4

1919

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AMERICAN DYESTUFF REPORTER

Vol. IV, No. 1

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AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
"Circulated Everywhere Dyestuffs are Used"

Vol. 4 New York, January 6, 1919 No. 1

RESUMING RESEARCH

Halted by the War, This Important Phase of Industry Must Now Be Extensively Cultivated By Dye Manufacturers to Compete Successfully in Foreign Markets

"WAR is hell!" Probably no statement uttered by any character in American history has achieved any more popularity or become any more widely known than the foregoing. Everyone, from the school child up, knows who said it; yet, curiously enough, according to a writer in *Everybody's Magazine*, General Sherman once tried to recall "the when and where of his famous epigram, and even instituted a search in 1891 of his records and newspapers, without finding any evidence that would establish the matter."

We are indebted to the same authority for the information that the man who heard him say it has now come forward and given the circumstances. These, by the way, are most interesting, but the really important point is that he *did* say it and that it lived.

Another utterance by a well-known public character which bids fair to attain almost as great a degree of renown as the Civil War hero's—though less likely to be quoted so often in the school histories!—is the already celebrated reply sent by Herbert Hoover to the German emissaries who requested an interview with the food dictator to determine the Hun's share in the provender of the world ". . . And you can tell the pair personally to go to hell, with my compliments!" remarked Hoover thoughtfully, and no doubt feelingly, as he handed the messenger a letter of refusal. There are some who have said that the profanity was a trifle uncalled for—but, then, Hoover knew the Germans at first hand through his personal experiences and observations in Belgium!

We have, then, at least two men who have added fresh lustre to their names by the timely and well-chosen use of a bit of profanity. There is also Washington's classic outburst at the battle of Trenton; but as the remarks of the father of his country are not on record, and hence not quotable, we know little about it save that the "cussing" on that occasion "was truly Washingtonian in its grandeur," as one writer puts it.

Traditions and historic remarks are interesting things, and there is not a nation, an organization nor an industry which does not boast a few; but the general belief is that the American dye industry is yet a trifle young to have 'em. This may well be, for they take considerable time to achieve that mellowness which gives them their flavor. Yet at least one such utterance comes to mind principally because, now that the war is over, the memory of it resurrects a subject which is pertinent to the welfare of the industry.

An important figure in the trade, whose name, at his request, will *not* be disclosed, when asked in the autumn of 1918 what was being done in the way of research to aid the dye manufacturers, replied vigorously, "Research? To hell with research. Our business now is to win the war!"

And the soundness of this logic was indorsed by all who heard of it.

Well, the war has been won, and, now that the arts of peace will again be extensively cultivated, both the opportunity and the urgent necessity for systematic and far-reaching research become increasingly apparent.

Widespread, properly conducted research is to an industry what elections are to the Congress and State legislative bodies; and in the case of a highly technical line of endeavor, such as the dyestuff industry, it is absolutely essential. Time was when the crude, commercial-minded business man frowned with contempt upon what he regarded as a dreamer who spent his days mooning over bottles, retorts and test tubes. He meant the professional research chemist! That he regarded the latter individual in this wise was largely the chemist's fault; but that has all been straightened out and need not be gone into again. The fact is established in the minds of all that research in an industry keeps it alive and active; it finds new ways of making money for the manufacturer and helps him to make his products at less expense; it shows him how to reap a profit from materials which have been going to waste, and, in short, it provides the shake-ups and new blood and the healthful competition which are beneficial to business—just as the prospect of approaching elections helps to keep the politicians energetic and on the job.

Dr. Charles H. Herty, whose sprightly and pointed editorials in the *Journal of Industrial and Engineering Chemistry* are ever a terror to the inefficient and a very present help to those who like to get things done, had this to say some three months ago:

"The days of experimental and large-scale production of known dyestuffs have been accomplished. To rest content with the present status of the industry would not be characteristic or worthy of this nation, which is justifiably proud of its initiative, resourcefulness and inventive spirit. New lines must be developed and new advances made in technical methods if we are to be more than mere copyists. No surer provision could be made for these efforts than the semi-annual gathering of the research men from the various dyestuff laboratories in the atmosphere of a great assembly of chemists. The presentation of papers and their discussion would establish facts of value to all; broader viewpoints would be obtained and sympathetic relationships formed which would stand in good stead.

"It is natural, perhaps, that each commercial organization should desire to retain for itself the benefits of research; yet, carried too far, it is a short-sighted policy, in view of the varied workings of different minds. Too much secrecy as to certain fancied advantages has already proved in some cases the cause of industrial "dry rot." Community of knowledge as to scientific achievement safeguarded by critical discussion of results, will prove so valuable a means of industrial advance that it must not be neglected."

This is most excellent talk, and was the result of a proposal to organize a dyestuff section of the American Chemical Society. Thanks to the efforts of Mr. R. Norris Shreve and others, the organization of such a body has been effected, and the occasion, which was the Cleveland meeting of the society, represents a long and definite step forward in the progress of the industry.

Research, to be properly carried out, involves no mean expenditure of money, and American manufacturers, as a body, have been slow to realize that it was money well spent. The peoples of Europe, whose resources were not provided them with such a lavish hand as our own, developed a greater caution, took a long look ahead and saw the point without difficulty. And we all know that, especially in Germany, co-operative research, such as Dr. Herty advocates, as distinguished from the individual and secretive variety practised by many of the larger firms, brings greater benefits to an industry as a whole in the long run.

Moreover, while this country was at war and the manufacturers were obliged to consider principally the needs of domestic consumers of dyestuffs and were secure against anything like real competition in the foreign markets, the "close-mouthed" policy did no particular harm. But with Germany preparing to enter the lists again, and with England and others also to be reckoned with, the combined efforts of our best minds will be none too much for the struggle. It is the old story of the advantage of "getting together" applied in still another way.

We might almost hazard the statement that this country is lucky to have a dye industry of its own. While we knew well that there was plenty of ability available for the creation of one, the question was whether circumstances would not render the task so superlatively difficult as to cause it to be adjudged unworthy of accomplishment in the minds of those not thoroughly conversant with the crying necessity for its existence. The race between time and the successful establishment of the industry may be said to have been exceedingly close: and when one considers how gloomy the prospect looked at times, and how many almost tearful "if only's" were expressed, our present state of self-assurance seems almost miraculous and a bit difficult to get used to.

"War is hell!" said Sherman. But it was not looked upon in exactly this light by the creators of the American dye industry. They had rather come to regard peace—at least, a too early peace—as representing particular Sheol so far as their purposes were concerned. And such it would have been. Now peace is here and yet the industry is safe. They are now faced with the task of keeping it safe and of expanding it to the point where the markets of China and South America, good shares of which are rightfully theirs, can be gathered into the fold.

The man who said "To hell with research!" meant that at the time of uttering this remark the sort of research which is far-reaching enough to result in the creation of new processes would only mean wasting the time of many chemists whose efforts were needed more urgently elsewhere. He was entirely right. Now we have the leisure, and from now on the willingness of the manufacturers, and consumers as well, to recognize the fact that research offers the outlet to additional and bigger business, and the assiduity with which they devote themselves to the organization of extensive research departments will determine the measure of our success in gaining foreign markets against the competition of our erstwhile enemies and allies.

Especially well-chosen and timely was the sentiment expressed in the Christmas cards sent out this year by A. Klipstein & Company, of New York. The design consisted of the conventional American eagle in full flight, bearing in its claws the national emblem attractively engraved in colors, while the text was as follows: "During nearly one hundred and fifty years of national life, the American flag has never been lowered in defeat. We know that Americans have accomplished the overthrow of the greatest military power in the world, and in consequence the American flag floats to-day as the emblem of liberty in the whole world. This is an additional reason why every patriotic American for all future time should acclaim with joy and pride 'The Star Spangled Banner'."

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

C. L.—Question—Please inform me through your inquiry department just how many dyes were in use at the close of the year 1916?

Answer—The total number of dyes known in the industry at the close of the above year was approximately 5,700. This includes besides distinct dyes, those known as modifications of dyes. As requested by you, the answer to your other question, together with the analysis of the sulphur black, has been forwarded by mail.

H. K.—Question—What are the primary raw materials required for the production of Naphthol Yellow?

Answer—Naphthol Yellow is produced by treating naphthaline with sulphuric acid to first convert it into naphthaline sulphonic acid, and this is fused with caustic soda to form a-naphthol.

When this is acted upon by fuming sulphuric acid, a-naphthol tri-sulphonic acid is formed, and by nitrating this we obtain Naphthol Yellow.

O. C. K.—Question—What is Methylanthracene and in what class of dyes is it used?

Answer—Methylanthracene is a hydrocarbon having the chemical formula $C^{15}H^{12}$, and is present in coal tar. It is closely related to Anthracene and enters into the production of dyes resembling those derived from oil.

T. H. B.—Question—Can you give me a list of the seven colors allowed for use in food?

Answer—The following seven colors, which must be pure, are allowed for the coloring of food:

Red Shades—Amaranth, Ponceau 3R, and Erythrosin.

Orange Shade—Orange 1.

Yellow Shade—Naphthol Yellow S.

Green Shade—Light green S. F. yellowish.

Blue Shade—Indigo disulphoacid.

With a capital of $100,000, the Hirbon Textile Company has been incorporated under the laws of New York by C. A. Weldon, T. F. Curran and M. Hayman, 133 West Twenty-first Street, New York City.

AMERICAN DYESTUFF REPORTER
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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

WHO SHOULD DO THE WAITING?

The suit for $12,000 instituted against the Calco Chemical Company, of Bound Brook, N. J., which will result in the financial affairs of this concern being made the subject of an inquiry before Vice Chancellor Lane this week, brings to the forefront an exceedingly serious question of legal responsibility which is likely to make itself felt in many ways, and to work severe hardships in numerous industries as time goes on.

The claim is made by Charles W. Leveridge, Inc., of New York, and alleges that this sum is owed the claimant in payment for building materials sold and delivered to the Calco Company. According to an affidavit by Walter J. Leveridge, treasurer of the New York concern, the Calco Company has taken the stand that until the Government shall pay a claim of approximately $1,200,000 arising from a so-called "procurement" order pursuant to which the Calco people undertook the construction of an addition to their plant for the manufacture of TNA, it would withhold payment for materials furnished for that plant.

According to a bill of complaint filed by Bilder & Bilder, the Calco Company has $3,900,000 of capital stock outstanding, $700,000 of which is eight per cent cumulative preferred stock and the remainder common. There is also, it is claimed, outstanding, an issue of $250,000 of six per cent gold notes, which will mature in December of the present year.

This is not the first time that a case of this sort has been called to the attention of the industrial world, nor will it be the last. The inevitable chaotic conditions produced by such an upheaval of giant forces as we have just experienced are bound to be renewed in fresh directions during the settling down process. Yet at the same time there are unquestionably instances where the suffering is largely needless, and should be alleviated without undue loss of time

There are doubtless fine legal points pertaining to the case under consideration which we wot not of, and it is but fitting that these should be left to the luminaries of the bar to wrestle with. From the standpoint of common sense, however—not that we wish to be understood as trying to make any distinctions—it would appear at first blush that the Calco Company is justified in taking the stand credited to it in the matter. But let us see.

The Government, which is to say the people of these United States, needing explosives desperately, sought out a company versed in the making of these and promised it sufficient money to defray expenses, either outright or as profits from the sale to the people of this necessity, in return for immediate action. On the strength of this, the company promised to other companies varying shares of this money in return for materials and labor leading up to the manufacture of these explosives.

The materials and labor being accepted, the need for explosives then ceased; to make any more would represent an unpardonable waste of the people's money, which is accordingly withheld from the company, which in turn passes what looks like a severe tax on patriotism along to the smaller companies which are, therefore, out of pocket to the extent of their several contributions of materials and labor.

The House that Jack Built provides no more lengthy chain of cause and effect than does the wholesale cancellation of war contracts by the Government in some instances.

But the question hinges this time

upon the plant erected in response to the people's need. Were this a total loss to the Calco Company, the only fair adjustment would be that the 100,000,000 people of this country pay the cost of building it, share and share alike, according to their various degrees of friendship with the tax assessors. Fortunately, however, the plant can readily be employed in the manufacture of American intermediates or dyes for the markets of the world, and hence no one should be the loser.

If the operation of the plant presents too great an undertaking for an overcapitalized concern, then it has the alternative of selling the plant to someone who wishes to undertake the project, accompanied by a corresponding reduction in capital. In this way the money can be recovered and the claimants paid.

It is unfair and unnecessary to keep the smaller fry, who are less well equipped to stand the strain, waiting for a return on their capital invested, but at the same time it should be the special concern of the Government to extend a paternal hand to corporations placed in the position of the Calco Company, either in finding and encouraging purchasers for idle plants or discovering new fields of usefulness for these plants, and, in short, rendering such assistance as seems necessary.

Bruinier Leaves Dicks David

A. G. Bruinier, formerly vice-president of the Dicks David Company, Inc. 299 Broadway, New York, wishes to announce to the trade that he has severed his connections with the above firm, taking effect December 31, 1918.

With a capital of $100,000, the Castle Silk Piece Dyeing Company has been incorporated under the laws of New Jersey to manufacture silk and other fabrics. Headquarters of the concern will be located in Paterson, that State.

THE "FASTNESS" OF AMERICAN-MADE DYES

An interesting article dealing with the persistence of the German propaganda which is still operating, apparently, to breed distrust in American dyes among shoppers, has been placed before the public by a writer in *Drug & Chemical Markets,* who finds from his investigations ample proof of the oft-repeated assertion to the effect that ignorance is the chief cause of the belief that our domestic colors are not fast. Some of the statements passed over the counter by the department store clerk to the ultimate consumer should be of intense interest to those engaged in a sincere effort to squelch these malignant lies, and for this reason are reproduced herewith. The article follows:

"Have you any khaki handkerchiefs?" asked a customer of a clerk in a leading dry goods store in New York. The handkerchiefs were shown by the clerk, but were not of the quality desired.

"I want linen handkerchiefs," said the customer. "These are not linen."

"No, they are not," replied the clerk. "You cannot get colors in linen. It won't take the dye. American colors are not fast on linen."

"But I have bought linen handkerchiefs with colored border and they were fast colors," protested the customer.

"Can't help it; that must have been before the war!"

So the German propaganda continues to be spread in the heart of New York, in high-class shopping centers like Thirty-fourth Street, Forty-second Street and Fifth Avenue. After months of denial and the presentation of proof convincing to persons of average intelligence, the dyestuff interests again face the problem of eradicating this malignant insinuation which is spread by German sympathizers to poison the public mind against American-made colors and create a demand for German dyes when peace is declared.

The statement that American-made colors are not fast on linen is untrue. A dye is a definite chemical body as pure as a pharmaceutical product intended for medicinal use. When correctly made, the impurities and by-products are washed out, salted out or crystallized out, and the dye is the same whether made in America or in Germany. Color for color there is no difference between the German dyes and the American dyes. The American dyes are just as fast as the German dyes used here before the war. They are fast on cotton and on linen, on silk and on wool. Cotton and linen are made from vegetable fibers which are almost pure cellulose. They take and hold the dye equally well because of this fact. Silk and wool are made from animal products, and there are American dyes suited to silk and wool, just as there are American or German dyes suited to cotton and linen. If the conditions of use and methods of application are studied and followed correctly the results are the same.

Investigation by leading dyestuff manufacturers like E. I. du Pont de Nemours & Co., the National Aniline & Chemical Company, A. Klipstein & Co., Butterworth-Judson Corporation, Marden, Orth & Hastings Corporation, Frank Hemingway, Inc., H. A. Metz & Co., Inc., Aniline Dyes & Chemicals, Inc., E. F. Drew & Co., Inc., and the Union Dye & Chemical Company disclosed the fact that ignorance was largely responsible for the belief that American-made dyes are not fast. By systematic work these companies were able to offset much of the German propaganda, and the leading department stores have co-operated with the dyestuff manufacturers in righting the wrong impression as the the fastness of American colors. B. Altman & Co., Lord & Taylor, James McCutcheon & Co., James McCreery & Co., Arnold, Constable & Co., Gimbel Bros. and Stern Bros. have instructed their buyers and their sales force on the essential facts, yet there is more or less hesitancy shown at these stores when a customer inquires about the fastness of American dyes. A saleswoman at Lord & Taylor's was asked last week:

"Are these khaki handkerchiefs all linen?"

"We guarantee them to be linen."

"Are the dyes fast?"

"We do not guarantee them."

When inquiry was made at James McCreery & Co.'s store the saleswoman declared that khaki dyes would not "take" on linen. Stern Bros. would not guarantee khaki handkerchiefs to wash. At B. Altman's it was said without hesitation that the colors in the khaki handkerchiefs were fast and they were guaranteed to be linen.

E. A. MacKinnon, of the Butterworth-Judson Corporation, had this to say on the subject: "The supposition exists in this country that American dyes are not to be compared with those imported principally from Germany. We have had one concrete instance brought to our attention where a salesman in a store in answer to an inquiry for linen handkerchiefs of a khaki shade made the remark that the American dyes were not fast when applied on linen, and also speaking disparagingly of American dyes in general.

"This to the chemist and dyer is nothing more than an expression of ignorance, but to the layman the fact cannot be mentioned too strongly that, type for type, our American dyes are equal in shade, strength, solubility and fastness in every respect to the pre-war dyes.

"At the start of the war there was a mad scramble for anything in the shape of color, with the result that some cheaper colors were put on material that demanded a fast color. This was due to the fact that previously most of the dyes had been brought from Germany, and it was felt that there would be a great shortage in the trade on account of the lack of those importations. For example, of the many blacks for cotton, the easiest to make would be suitable for linings in material that very seldom sees light and is never washed; if, however, this black was used on hosiery, the color would be condemned at once, but it was only a very short time before sulphur blacks were being produced in large quantities, and it is a well-known fact that this was the color so largely used before the war in producing black where fastness was required. The domestic dyes on linen are fully equal to the German or any other foreign-made dyes of any description."

H. G. McKerrow, of E. F. Drew & Co., said: "The carefully nutured doctrine that American dyes are not as fast as German dyes still seems to be pursuing its mischievous course in some quarters. It illustrates the ease with which a rock can be started on its devastating course down a declivity, and the difficulty of getting in its track and stopping it. There cannot be too great or too frequent an insistence that, class for class and type for type, American dyes are just as fast as German dyes. And this is just where the unposted layman gets fooled. Anyone with even a rudimentary knowledge of dyestuffs knows, for instance, that it is manifestly unfair to compare a Congo red with a similar shade of Indanthrene red, or a common Acid blue with an Alizarine blue. This has been done without compunction and the offender has, in many cases, been allowed to 'get away with it.

"I think I was almost the first to call attention to the danger of the newly-born American infant industry of this dangerous and insidious teaching in an address I made before the Industrial Exposition and Export Conference in Springfield, Mass., in the spring of 1917, and again before the National Association of Cotton Manufacturers in September, 1917, and still more recently and emphatically in an address at the convention which saw the birth of the American Dyestuff Manufacturers Association in March of this year. Since then many efforts have been made to arrest the development of this belief, the most elaborate and probably the most successful being the traveling exhibit which has been sent round the country by the National Aniline & Chemical Company.

"A visible demonstration is worth hecatombs of talk and remonstrance, although these, too, have their uses in the proper place.

"The new American dyestuff industry has been established and maintained under infinite difficulties, and if it had not been for the solid foundation which already existed in this country, built by years of persistent effort against the fiercest and most unprincipled opposition, it probably never could have been done. It should be remembered that not only has it been necessary to make the dyes themselves, but the intermediates out of which the dyes are made, and the crude out of which the intermediates are made; and this in face of an urgent necessity for these same crudes by our Government for war purposes.

"In the first enthusiasm for making dyes to supply the shortage suddenly created by the elimination of the German factor, all kinds of people rushed into the breach, some without any chemical knowledge at all, some without any capital at all, and some without any desire to do anything but get both fore trotters in the trough while the trough was there. Out of this largely nodescript multitude of aniline dye manufacturers, numbering at one time no less than 125, there is gradually emerging a limited number of permanent factors possessing capital, chemical knowledge and facilities, and an intention of creating something of permanent value. If American dyes are not called upon to give guarantees which similar German dyes of the same classes and types were never called upon to give, a disposition to do which has unfortunately been manifested by our color manufacturers—the nation can rest assured that the industry is here to stay and to grow until we are, for all time, freed from depending on foreign sources of supply either Swiss or German.

"As I pointed out in March, at the Dyestuff Convention, however, we shall not assume and retain our position, in export trade particularly, until some efficient and adequate method of standardizing American-made colors is devised. Already the Japanese and South American buyers are strenuously protesting against the character of some of the deliveries they have received. Whether this condition has been caused by deliberate adulteration, or by an inability on the part of some of our manufacturers to maintain their standards, and to make deliveries comparable with the samples submitted, is not easy to determine: probably both these conditions have had something to do with it, although I am inclined to think the latter, caused by the difficulty in obtaining regular and standard supplies of intermediates, is the principal cause of the trouble.

"The future of the industry in this country is full of hope, but it will probably become concentrated in a comparatively small number of hands, controlling or manufacturing their own crudes and intermediates, and the large number of so-called dyestuff manufacturers, having buzzed, more or less happily, through a summer day, will go to their own place."

Wm. J. Matheson, president of the National Aniline & Chemical Company, said: "In reply to your question relating to the comparative merits of American and German dyes, I am very glad to reaffirm the facts as stated by us in our recent announcements.

"Last spring, at the Textile Show, we invited the public to examine what we had accomplished in the production of coal-tar colors, and of intermediates. These intermediates had not been made in America previous to the war. We exhibited dyeings from American products in comparison with dyeings made from their German prototypes, which had been subjected to the usual mill tests of sunlight and weather, demonstrating clearly that color for color, what we were producing was equal to its German equivalent. Thus we were then able to announce that the supply of American colors, equal to German colors of the same type, was an accomplished fact.

"At this time, however, we frankly cautioned both the consumers of dyes and the users of textiles that certain shades could only be obtained from dyes that would prove fugitive to exposure to sunlight. We called special attention to the absence of the fast blue which is necessary for obtaining the mode shades for silks and wool dress fabrics, and for light woolen suitings.

"We have since been able to announce that as a result of the successes of our research department we are producing in limited quantities, two of the fastest blues known in the art of dyeing. These will now make it possible to obtain bright blues, greens and mode shades of great fastness.

"The new blues are Alizarine Sapphire for wool, which is the fastest known level acid dye to light, and Carbanthrene Blue for cotton, a vat-color of the greatest fastness to washing.

"The production of these types, with Indigo and Alizarine but recently manufactured in large quantities, and some twenty other fast colors now produced by us, means that every reasonable demand for fast colors has been met in America by the dyestuffs developed by American research from American basic materials. The successful manufacture of dyes in all its complexity may now be regarded as fully established here. In 1919 all these products will be available in large quantities.

"We feel confident that we have already proved false the statements of the propagandists who have disparaged American dyes in an attempt to keep the American market open for post-war trade in German dyes."

DYEING LOGWOOD IN THE COLD BATH

Vegetable dyes, such as logwood carry with them impurities natural in wood, such as resins, tannins and earthy matter, and these retard dyeing with extract obtained from logwood. Dyeing with logwood or similar vegetable colors is now carried on at a comparatively high temperature, but according to a new process, just patented in Philadelphia, these products can be removed without rise of temperature, and thus the dyeing can be carried out in a similar state; at the same time, with a rise of temperature the patentees claim that the process of dyeing is quicker and better.

Extracts of logwood are now purified by extracting, through a series of chemical processes, one impurity after another, but such procedure requires a great deal of time, and is rather too expensive for practical work. To purify logwood so that it may be used in the cold bath, as well as with advantages by a raised temperature, the patentees of the new process add a slight amount of sulphurous acid to the logwood extract or solution, say from 1 to 10 per cent by weight of the acid to the dye, and when the impurities are automatically discharged from the solution they settle at the bottom of the receptacle in which the solution is contained, producing in turn a practically pure dye, free from resins, tannin and like products. The patentees also mention that it is possible to use the gaseous product instead of the liquid acid, however, giving preference to the use of the sulphurous acid of commerce.—*Fibre and Fabric.*

The capital of the French Worsted Company, of Woonsocket, R. I., has been increased from $400,000 to $1,000,000.

NOTES OF THE TRADE

The Republic Color & Chemical Works Company, Philadelphia, Pa., has issued an announcement to the effect that the capital of this concern has been increased from $150,000 to $250,000.

Acids will be manufactured by the United Dyes Corporation, 320 Front Street, Perth Amboy, N. J., in the new works which the company plans to install and operate in the building formerly occupied by Herman & Herman, on the waterfront. The concern is awaiting the permission of the Harbor Board, application for which has been made.

Plans have been filed by the General Chemical Company for the construction of a new two-story plant at Laurel Hill, Long Island. The cost of the structure will be $35,000.

Vapor from an overheated still recently caused a fire in the plant of the Van Dyke Chemical Company, 57 Wilkinson Avenue, Jersey City, N. J. The resulting damage was estimated to be in the neighborhood of $10,000.

Directors of the Semet-Solvay Company, Syracuse, recently elected at the annual meeting of that concern, consist of the following: E. L. Pierce, H. H. S. Handy, J. G. Hazard, E. C. Witherby, C. T. Boynton, W. B. Cogswell, E. D. Winkworth, Nathan L. Miller and A. W. Hudson.

With a capital of $10,000, the Swiss-American Aniline Products Company, Inc., has been incorporated under the laws of New York to manufacture chemicals and to import aniline products. Headquarters of the new concern will be in New York City, and the incorporators are Samuel Albert, Samuel A. Nathans and Samuel Marks.

With a loss estimated at about $150,000, consisting of the total destruction of six condensing chambers, fire recently visited the Cleveland plant of the Grasselli Chemical Company. The sulphate department building was also destroyed, and, according to officials of the company, the loss will take about six months to replace. The plant was engaged principally in the manufacture of sulphuric acid for war munitions.

The head office of the Marden, Orth & Hastings Corporation has been moved from 61 Broadway to 136 Liberty Street, New York City.

The National Aniline & Chemical Company has declared an accumulated and previously unpaid dividend of 3½ per cent on its preferred stock. This dividend is payable January 15 to stock of record December 20, and is in addition to the regular quarterly dividend of 1¾ per cent on the preferred stock payable January 2 on stock of record December 20.

With a capital of $10,000, the Steiner-Lee Dye Works has been incorporated under the laws of Illinois by Louis Lee, Isadore Steiner and Sarah E. Bamber. The headquarters of the company will be in Chicago.

Announcement has been made by the Swiss Textile Company, of Warren, R. I., of an increase in the company's stock from $75,000 to $99,000.

The contract has been awarded by S. C. Pratt, Los Angeles, Cal., for the reconstruction of his dye works at 1338 San Julian Street, that city, which were recently damaged by fire.

AMERICAN DYESTUFF REPORTER

Vol. IV, No. 2

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AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

Vol. 4 New York, January 13, 1919 No. 2

THE PROPOSED COAL-TAR AMENDMENT

Tariff Commission's Recommendations for Changes in Title V, Act of September 8, 1916, Now Ready for Inspection by Dye Industry

WHEN representative manufacturers and consumers of dyestuffs climbed into their luxuriously appointed private cars and Pullmans and journeyed down to Washington more than a month ago to decide the momentous question of what to do with the Dye Section of the War Industries Board—and decided while there to ask Congress for a licensing commission—they were told that Dr. Taussig and his colleagues of the Tariff Commission had evolved a plan for improving the existing schedule for coal-tar chemicals, and were soon to be submitted to the industry at large for comment.

Later, when these same gentlemen assembled at Sherry's on the occasion of the first—and last—annual banquet of the American Dyestuff Manufacturers' Association, as such—that organization now being *spurlos versenkt* in the American Dyes Institute—they were again reminded, this time by Dr. Taussig himself, that these recommendations to Congress were in the hands of the printer and nearly ready for distribution. And inasmuch as members of the dye fraternity have been soulfully and fervently unanimous in expressing their belief that the existing coal-tar schedule is even as gossamer and gauze when it comes to affording adequate protection to the industry in the face of the impending Hunnish onslaught, the expectancy with which they have been awaited has been decidedly tense.

Now they are here. The pamphlet containing them bears the general title "Dyes and Other Coal-Tar Chemicals," with the supplementary title "Report to Congress Recommending Amendments to Title V of Act of September 8, 1916." This was the act containing the historic "60 per cent clause," which, by the way, will be a thing of the past if the newly-proposed amendments are adopted in their present form. Another important point proposed provides that beginning six months after the passage of the act all packages of dyestuffs received from abroad will be refused entry into this country unless they, and their accompanying invoices, "bear a plain, conspicuous and truly descriptive statement of the identity and percentage, exclusive of diluents," of their contents.

The entire situation is dealt with in the report in a manner admirable for its clarity and conciseness, especially when the manifold complications involved are considered, and members of the Tariff Commission should receive ample credit from the industry for the painstaking effort which they have made in its behalf. As explained by Dr. Taussig, an attempt to force upon Congress at this time a luridly radical assault upon the existing tariff laws would inevitably stir up hostility enough in that august body to insure certain defeat, and hence a great degree of restraint was exercised in order to secure the maximum of good while reducing the chances of opposition to a minimum.

The members of the Tariff Commission, whose names are herewith given for the information of the trade, are as follows: Dr. F. W. Taussig, chairman; Thomas Walker Page, vice-chairman; David J. Lewis, William Kent, William S. Culbertson and Edward P. Costigan. In the preparation of the proposed amendments the commission had the services of Dr. Grinnell Jones, chemist, and Dr. E. R. Pickrell, of the U. S. Customs Service. William M. Steuart, from whom copies of the pamphlet may be obtained, acts as secretary to the commission.

Space forbids the reproduction of the whole report, which is divided into six parts, and consequently a discussion of the reasons given for the various changes will be deferred until the next issue of this journal. For the convenience of those concerned, the report indicates clearly what these changes are in the following manner:

The proposals for the revision of the dyestuff tariff act of September 8, 1916, which the commission suggests, will, it is believed, be most readily and clearly understood by reproducing the original language of the act and indicating the changes by means of deletions and insertions. In the following form the words omitted from the original act are quoted and the words inserted or substituted are italicized.

A BILL TO AMEND AN ACT ENTITLED "AN ACT TO INCREASE THE REVENUE, AND FOR OTHER PURPOSES," APPROVED SEPTEMBER 8, 1916.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Title V of an act entitled "An act to increase the revenue, and for other purposes," approved September 8, 1916, be and hereby is amended to read as follows:

TITLE V.—*Dyestuffs*

Sec. 500. That on and after the day following the passage of this act, except as otherwise specially provided for in this title, there shall be levied, collected and paid upon the articles named in this section when imported from any foreign country into the United States or into any of its possessions, except the Philippine Islands and the islands of Guam and Tutuila, the rates of duties which are prescribed in this title, namely:

FREE LIST

Group I. Acenaphthene, anthracene having a purity of less than "twenty-five" *thirty* per centum, benzol, carbazol having a purity of less than "twenty-five" *sixty-five* per centum, "cresol," cumol, *cymene,* fluorene, "metacresol having a purity of less than ninety per centum," methylanthracene, methylnaphthalene, naphthalene having a solidifying point less than seventy-nine degrees centigrade, "orthocresol having a purity of less than ninety per centum, paracresol having a purity of less than ninety per centum," pyridin, quinolin, toluol, xylol, dead or creosote oil, anthracene oil, pitch of coal tar, *pitch of blast-furnace tar, pitch of oil-gas tar, pitch of water-gas tar,* crude coal tar, *crude blast-furnace tar, crude oil-gas tar, crude water-gas tar,* all other distillates *of any of these tars* which on being subjected to distillation yield in the portion distilling below "two hundred" *one hundred and ninety* degrees centigrade a quantity of tar acids less than five per centum of the original distillate, *all mixtures of any of these distillates and any of the foregoing pitches,* and all other products that are found naturally in coal tar, whether produced or obtained from coal tar or other source, and not otherwise specially provided for in this title, shall be exempt from duty.

DUTIABLE LIST

Group II. *Acetanilid not suitable for medicinal use, alphanaphthol, amidobenzoic acid,* amidonaphthol, *amidophenetol,* amidophenol, amidosalicylic acid, *aminoanthraquinone,* anilin oil, anilin "salts" *salt,* anthraquinone, *arsanilic acid,* benzaldehyde *not suitable for medicinal use, benzalchloride, benzanthrone,* benzidin, *benzidin sulphate,* benzoic acid *not suitable for medicinal use, benzoquinone,* benzoylchloride, benzylchloride, *betanaphthol not suitable for medicinal use, brombenzol, chlorbenzol,* chlorophthalic acid, *cinnamic acid,* cumidin, *dehydrothiotoluidin, diaminostilbene* dianisidin, *dichlorphthalic acid,* dimethylanilin, *dimethylamidophenol, dimethylphenylenediamin,* "binitrobenzol," *dinitrobenzol,* "binitrochlorobenzol," *dinitrochlorbenzol,* "binitronaphthalene," *dinitronaphthalene, dinitrophenol,* "binitrotoluol," *dinitrotoluol,* dioxynaphthalene, "diphenylamin," *diphenylamin. ethylbenzylanilin, hydroxyphenylarsinic acid,* metanilic acid, methylanthraquinone, "naphthol," naphthylamin, naphthylenediamin, nitranilin, *nitroanthraquinone, nitrobenzaldehyde,* nitrobenzol, nitronaphthalene, *nitrophenol,* nitrophenylenediamin, *nitrosodimethylanilin,* nitrotoluol, nitrotoluylenediamin, phenol, phenylenediamin, *phenylhydrazine,* phenylnaphthylamin, *phenylglycocoll, phenylglycocollorthocarboxylic acid,* phthalic acid, phthalic anhydride, *phthalimid,* resorcin *not suitable for medicinal use,* salicylic acid *and its salts not suitable for medicinal use,* sulphanilic acid, *thiocarbanilid, thiosalicylic acid, tetrachlorphthalic acid, tetramethyldiaminobenzophenone, tetramethyldiaminodiphenylmethane, toluol sulphochloride, toluol sulphamid, tribromphenol,* toluidin, tolidin, toluylenediamin, xylidin, or any sulphoacid or sulphoacid salt of any of the foregoing, *or of any of the products provided for in Group I;* "all similar products obtained, derived, or manufactured in whole or in part from the products provided for in Group I," *all other products by whatever name known which are employed in the manufacture of any of the products provided for in*

Group II or III and which are obtained, derived, or manufactured in whole or in part from any of the foregoing or from any of the products provided for in Group I; anthracene having a purity of "twenty-five" *thirty* per centum or more, carbazol having a purity of "twenty-five" *sixty-five* per centum or more, metacresol having a purity of ninety per centum or more, naphthalene having a solidifying point of seventy-nine degrees centigrade or above, orthocresol having a purity of ninety per centum or more, paracresol having a purity of ninety per centum or more; all distillates *of coal tar, blast-furnace tar, oil-gas tar, and water-gas tar* which on being subjected to distillation yield in the portion distilling below "two hundred" *one hundred and ninety* degrees centigrade a quantity of tar acids equal to or more than five per centum of the original distillate; *all mixtures, including solutions, consisting in whole or in part of any of the foregoing except sheep dip and medicinal soaps, not otherwise specially provided for in this act;* all the foregoing not colors, dyes, or stains, *color acids, color bases, color lakes, leuco-acids, leuco-bases, indoxyl, indoxyl compounds, ink powders,* photographic chemicals, medicinals, flavors, *resinlike products, synthetic tanning materials,* or explosives, and not otherwise specially provided for in this title, "and provided for in the paragraphs of the act of October third, nineteen hundred and thirteen, which are hereinafter specifically repealed by section five hundred and two," fifteen per centum ad valorem.

Group III. All colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, *leuco-acids and leuco-bases whether colorless or not, indoxyl and indoxyl compounds; ink powders;* photographic chemicals; "medicinals," *acetanilid suitable for medicinal use, acetphenetidin, acetylsalicylic acid, antipyrine, benzaldehyde suitable for medicinal use, benzoic acid suitable for medicinal use, betanaphthol suitable for medicinal use, phenolphthalein, resorcin suitable for medicinal use, salicylic acid and its salts suitable for medicinal use, salol, and other medicinals; sodium benzoate; saccharin, methyl salicylate, coumarin, and other* flavors; synthetic phenolic resin *and all resinlike products prepared from phenol, cresol, phihalic anhydride, coumaron, indene, or from any other article or material provided for in Group I or II, all of these products, whether in a solid, semisolid, or liquid condition; synthetic tanning materials;* "or explosives, not otherwise specially provided for in this title," *picric acid, trinitrotoluol, and other explosives except smokeless powders; all of the foregoing* when obtained, derived "or" manufactured in whole or in part from any of the products provided for in "Groups" *Group* I "and" *or* II; natural alizarin and *natural* indigo, and colors, dyes, *stains, color acids, color bases,* "or" color lakes, *leuco-acids, leuco-bases, indoxyl, and indoxyl compounds* obtained, derived, or manufactured "therefrom" *in whole or in part from natural alizarin or natural indigo; natural methyl salicylate or oil of wintergreen or oil of sweet birch; natural coumarin, and all mixtures, including solutions, consisting in whole or in part of any of the articles or materials provided for in this group,* thirty per centum ad valorem.

Sec. 501. That on and after the day following the passage of this act, in addition to the duties provided in section five hundred, there shall be levied, collected, and paid upon all articles contained in Group II a special duty of 2½ cents per pound, and upon all articles contained in Group III "(except natural and synthetic alizarin and dyes obtained from alizarin, anthracene, and carbazol; natural and synthetic indigo and all indigoids whether or not obtained from indigo; and medicinals and flavors)" a special duty of 5 cents per pound: *Provided, That the special duties herein provided for on colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, leuco-acids, leuco-bases, indoxyl and indoxyl compounds, shall be based on standards of strength which shall be established by the Secretary of the Treasury, and that upon all importations of such articles which exceed such standards of strength the special duty of 5 cents per pound shall be computed on the weight which the article would have if it were diluted to the standard strength, but in no case shall any such articles of whatever strength pay a special duty of less than 5 cents per pound: Provided further, That, beginning six months after the date of passage of this act, no package containing any such color, dye, stain, color acid, color base, color lake, leuco-acid, leuco-base, indoxyl, or indoxyl compound shall be admitted to entry into the United States unless such package and the invoice shall bear a plain, conspicuous, and truly descriptive statement of the identity and percentage, exclusive of diluents, of such color, dye, stain, color acid, color base, color lake, leuco-acid, leuco-base, indoxyl, or indoxyl compound contained therein: And provided further, That, beginning six months after the date of passage of this act, no package containing any such article shall be admitted to entry into the United States if it, or the invoice, bears any statement, design, or device regarding such article or the ingredients or substances contained therein which is false, fraudulent, or misleading in any particular. In the enforcement of this section the Secretary of the Treasury shall adopt standards of strength which shall conform as nearly as practicable to the commercial strengths in use in the United States prior to July first, nineteen hundred and fourteen.*

"During the period of five years beginning five years after the passage of this act" *Beginning September ninth,* *nineteen hundred and twenty-one,* such special duties shall be annually reduced by twenty per centum of the rate imposed by this section "so that at the end of such period" *until September eighth, nineteen hundred and twenty-five, after which date* such special duties shall no longer be assessed, levied, or collected, "but if, at the expiration of five years from the date of the passage of this act, the President finds that there is not being manufactured or produced within the United States as much as sixty per centum in value of the domestic consumption of the articles mentioned in Groups II and III of section five hundred, he shall by proclamation so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied, or collected."

The Secretary of the Treasury is hereby authorized to make regulations for the enforcement of the provisions of this title.

Sec. 502. That paragraphs twenty, twenty-one, twenty-two, twenty-three, *one hundred and seventy-nine,* three hundred and ninety-four, four hundred and fifty-two, and five hundred and fourteen, and the "words 'salicylic acid' in paragraph one of Schedule A of section one" *provision for salicylic acid in paragraph one; and provisions for salol, phenolphthalein, acetanilid, acetphenetidin, antipyrine, acetylsalicylic acid, and aspirin in paragraph eighteen; and the provisions for benzoate of soda in paragraph sixty-seven;* and the "words 'carbolic' and 'phthalic' " *provisions for carbolic and phthalic acids* in paragraph three hundred and eighty-seven "of the 'free list' of section one of said act, and so much of said act or any existing law or parts of law as may be inconsistent with this title are hereby repealed" of an act entitled "An act to reduce tariff duties and to provide revenue for the Government, and for other purposes," approved October third, nineteen hundred and thirteen, are hereby repealed: *Provided, That all articles which may come within the terms of paragraphs one, five, thirty-seven, forty-six, sixty-three, five hundred and one, and five hundred and thirty-eight of said act of October third, nineteen hundred and thirteen, as well as within the terms of Group I, II, or III of section five hundred of this act shall be assessed for duty or exempted from duty, as the case may be, under this act.*

Sec. 503. *That on and after the day when this act shall go into effect all of the foregoing goods, wares, and merchandise previously imported for which no entry has been made, and all of the foregoing goods, wares, and merchandise previously entered without payment of duty and under bond for warehousing, transportation, or any other purpose, for which no permit of delivery to the importer or his agent has been issued, shall be subject to the duties imposed by this act and to no other duty, upon the entry or the withdrawal thereof: Provided, That when duties are based upon the weight of merchandise deposited in any bonded warehouse, said duties shall be levied and collected upon the weight of such merchandise at the time of its entry.*

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PROTECTION

In a democracy such as the United States, a necessary precedent to constructive legislation of any sort is a genuine popular demand among the various interests affected thereby. It happens in isolated cases that legislation which does not properly represent the best interests of an industry is jammed through Congress, but such occasions are rare and on the whole it is only after careful investigation in committee that any action at all out of the ordinary routine can be secured from the legislators.

in the case of the American dyestuff industry we believe that consumers as well as manufacturers are firmly of the opinion that protective legislation of some sort must be enacted without great delay. The coal-tar section of the Tariff Commission has recommended to Congress amendments to the present coal-tar tariff schedule which are primarily in the nature of explanations and applications of existing law. Because of the very great difficulty of satisfactorily applying any tariff legislation to dyestuffs and intermediates, it is not a legislation of this sort that the best informed elements in the industry desire for protection.

Careful thought given to the subject by leading manufacturers and consumers has convinced them that the most practical form of protection for the industry is to be had in the establishment of a Licensing Board, similar in its operation to that now authorized in Great Britain.

In previous issues of the REPORTER we have explained in a general way what would be the powers and functions of such a board, and we shall continue from time to time to dwell on this matter. We believe that as the obvious benefits to be derived from such an arrangement become more generally known and appreciated, the consuming element of the industry will lend its wholehearted support to the movement. There is no doubt that every American manufacturer of dyestuffs advocates this method of protection. There may, however, remain some doubt in the minds of certain consumers as to its advisability—to those who are of this opinion we earnestly urge a careful study of the situation. We are confident that if they will give the matter serious thought they will become convinced that this method is the most logical and practical which can be devised at the present time. Having satisfied themselves that legislation of this sort is desired, we sincerely hope that they will neglect no opportunity to impress upon all persons with whom they come in contact, particularly the legislators from their own districts, the necessity for this action.

If all elements in the industry can unite in supporting this movement, there is little doubt that Congress can be persuaded to take action at its next session, but if there appears to be indifference, or worse yet—a conflict of opinion among various elements in the industry, it would be extremely difficult to secure the necessary action. We cannot, for a moment, believe that any consumers of dyestuffs will allow themselves to contribute to the possibility of placing the American industry in such a position as it was before the war. Our dyestuff manufacturers have achieved a tremendous technical and commercial success in the short period which has passed since the outbreak of the war, but the development of the industry has not as yet gone so far as to enable it to maintain itself in

the face of unrestricted foreign competition. It is, therefore, incumbent upon every person who desires to see America the possessor of a permanent and self-contained dyestuff industry, to bend every effort to procure the legislation which the best informed leaders of the industry believe to be necessary for its development and maintenance.

E. W. PIERCE GOES TO ZOBEL

On another page of this issue the Zobel Color Works announce the association with themselves of Edward Wallace Pierce as vice-president and technical director. Until January 1 Mr. Pierce had been for two years chief chemist of the U. S. Conditioning and Testing Company, in which capacity he had had under his supervision the testing of a very large majority of the dyestuffs produced in this country since the war, either on direct samples submitted to him by the manufacturers or on samples coming to him through consumers.

Mr. Pierce has been occupied with the chemistry of dyestuffs for upwards of 21 years. He received his chemical education at the University of Pennsylvania, and thereafter for 18 years was associated with the National Aniline & Chemical Company, Inc., and its predecessors, being in charge of their Philadelphia laboratory, and frequently going out into the field and demonstrating the practical application of dyes among consumers in the textile, leather, paper, paint and other fields. At one time he designed, erected and operated a plant for the manufacture of aniline oil. All in all his practical experience in the chemistry of aniline dyes, both as to their manufacture and their application, is probably excelled by few persons in this country.

As technical director of the Zobel Color Works, Mr. Pierce will bring to this concern the benefit of his very considerable experience. He will have entire charge of production, and under his direction scientific control of manufacture and sales will be inaugurated and every effort made to give consumers the benefit of an unexcelled service coupled with carefully standardized products.

As was mentioned in the REPORTER two weeks ago, the Zobel Company recently acquired the factory site adjacent to their present plant in which modern dye and intermediate making machinery will be installed and which, when completed, will more than double their present capacity. It is the intention of the company shortly to begin the manufacture of certain colors which have been satisfactorily worked out in the laboratory, as well as to increase their output of intermediates. According to Mr. Pierce, the company will, before many months, be in a position to manufacture practically all of the intermediates required for the colors they are now producing.

THE QUANTITATIVE ANALYSIS OF DYESTUFFS

*An Address given at a recent meeting of the American Chemical Society by Alfred H. Halland**

The large majority of commercial dyestuffs contain besides the dyestuff proper a certain amount of moisture and a great variety of inert ingredients such as common salt, sulphate of soda, carbonate of soda, and so forth. While a certain amount of these bodies frequently is added in the process known as "Standardization," it is well known that it is practically impossible to isolate water-soluble dyestuffs without a minimum amount of salt, sulphate, and to a lesser degree, sodium carbonate.

By the quantitative examination of dyestuff I understand the determination of these various ingredients as well as of the coloring matter proper.

Before going into details I venture to state as my personal opinion that this line of work is being neglected in most dyestuff factories. When a manufacturing chemist delivers a quantity of dye to be "Standardized," he is too often satisfied if said quantity yields a fair amount of "Type." Am I much mistaken when I say that the chemist in many cases does not know what this "Type" really consists of? A quantitative analysis of each of his "Types" would show the chemist just what degree of perfection his manufacturing process has reached. It would either give him the satisfaction of knowing that his process was good or be an incentive to him to improve it. In the case of a great many complex dyestuffs, for example, certain polyazo dyestuffs, the actual yield of dyestuff from given quantities of intermediates is really quite poor. A quantitative analysis of the finished dyestuff as well as of the intermediate azo bodies should be instructive and should be carried out in all cases of bad yields. It would obviously only be necessary to do this work once for each individual "Type," as all future lots could be compared to the "Type" by the usual dyeing tests.

The quantitative determination of sulphur present as sulphonic acid groups, or of the degree of saturation of these with soda or potash, or of halogen, if such be present in the molecule, would form a valuable addition to the knowledge gained by a purely qualitative analysis of dyestuffs such as the chemist is occasionally called upon to make.

I now would like to review the methods which we have used in Buffalo with a fair degree of success. While I do not claim any scientific perfection or absolute accuracy for them, they have not been found seriously wanting.

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*National Aniline & Chemical Co.

DETERMINATION OF MOISTURE

Certain water-insoluble dyestuffs such as oil-soluble azo dyes, lake colors, bromo acid and so forth, contain none or very little moisture. The great mass of water-soluble dyestuffs contain moisture, partly bound loosely, and partly, and that I believe is the general rule, in the form of water of crystallization. It is interesting to observe the great tenacity with which even great quantities of water are retained by certain dyestuffs. This explains why the ordinary practice of drying organic compounds in a dessicator over sulphuric acid gives altogether too low figures for moisture when applied to dyestuffs. A sample of Wool Red lost in dessicator during three days two per cent in weight, while the same sample on drying to constant weight in an air oven at 125 deg. C. showed a loss of twelve per cent. This could be illustrated by a great many examples. For purposes of determining the moisture content it generally suffices to place the dyestuff in an air oven held at 125 deg. C., until constant weight is observed. The temperature of 125 deg. C., or even higher, is generally tolerated by a dyestuff without any evidence of decomposition. It has been recommended to place the dyestuff for moisture determination in a tube through which a current of hydrogen or carbon dioxide is conducted while the tube is maintained at a constant temperature by being surrounded by vapors of a suitable liquid, for example, boiling toluol. These precautions are as a rule quite unnecessary except when dealing with easily oxidized dyestuffs.

DETERMINATION OF SODIUM CHLORIDE

When the dyestuff does not contain any halogen in the molecule or when it is not a hydrochloric as in the case of basic colors, the salt determination is a simple matter. The general procedure is to mix the dyestuff intimately with from five to ten times its weight of c. p. anhydrous sodium carbonate and heat this mixture in an iron crucible gradually to a dull red heat, turning the mass over occasionally with a steel spatula until complete charring or partial combustion has taken place. The crucible content is, after cooling, mixed intimately with pure potassium nitrate in the proper ratio to insure an easy flux and the mass placed in the crucible again where it is cautiously heated until complete oxidation and fusion have taken place. The crucible content is then taken up with water, filtered, acidulated with nitric acid, and the sodium chloride determined in the usual manner with silver nitrate.

When halogen is present in the molecule it must be determined separately and the sodium chloride calculated by difference. In the case of basic dyes like Methylene Blue or Safranine, I believe a direct titration of the dyestuff by means of a standard solution of an acid dyestuff, for example, Naphthol Yellow according to Knecht by titanous chloride according to Knecht and Hubbert would be advisable. The titanous chloride titration is altogether very satisfactory for a great many simple dyestuffs, but fails in the case of more complex azo dyes.

Determination of Sulphate of Soda

This is not as simple as the salt determination and calls for greater ingenuity. Sometimes a direct precipitation in the acidulated solution of the dyestuff gives a fairly pure barium sulphate. As, however, a great many dyestuffs form hard soluble barium salts the precipitated barium sulphate is often more or less colored. This can be corrected by washing the precipitate with warm ammonium carbonate, whereby the color lake is decomposed into the ammonium salt of the dye which passes through the filter and barium carbonate which can be removed by dilute acid.

When the direct precipitation with barium chloride fails, it sometimes is a good plan to precipitate the dyestuff from its aqueous solution as thoroughly as possible with salt and determine the sulphate in the filtrate with eventual after treatment with ammonium corbonate.

In some cases when the dyestuff cannot be "salted out," advantage can be taken of the fact that acid and basic dyestuff mutually precipitate one another. If, for example, the problem is to determine the amount of sulphate in Patent Blue or Acid Green, a solution of a suitable basic color free from sulphates can be added to the solution of the acid color until a drop of the mixture placed on filter paper shows excess of the basic color. The condensation product is then filtered off and the barium sulphate precipitated in the filtrate As a suitable basic color I prefer Chrysoidine, because it can be easily prepared free from sulphates.

By these various methods a determination of the sulphate of soda present in the dyestuff can be secured without a very high degree of accuracy.

Determination of Sulphur and Sodium or Potassium

When the sulphate has been determined it is often of interest to determine the total sulphur present, including that residing in sulphonic acid groups. The fusion of one-half g. or less of the dyestuff with soda and nitre is generally more satisfactory than the classical heating in a sealed tube with nitric acid, according to Carius.

The amount of sodium or potassium present in a dyestuff is easily found by moistening a small quantity of the sample in a porcelain or platinum dish, driving the sulphuric acid off by heating the crucible, and repeating this process until a perfectly white ash remains. This is then heated to a dull red heat and weighed as sodium sulphate.

After the chemist has made the series of quantitative determinations mentioned it should be possible by piecing them together to form a correct picture of the true composition of the dyestuff before him.

U. S. LEADS IN CHEMICALS

Dye and chemical imports from Germany at the end of the war will be a negligible quantity, and even in the field of world trade it is doubtful if Germany will ever be able to embarrass seriously the leadership of the tremendously growing chemical industries of the United States.

Such figures as the increase in nitrate production to more than nine times what it was in 1914, the increase in sulphuric acid production from 12,000,000 pounds to 68,000,000 pounds in the same period, a jump from virtually nothing in caustic soda production to 334,000,000 pounds, in benzol from nothing to 25,000,000 pounds, and in dyes and dyestuffs from an output of $357,000 to $17,000,000, all speak for themselves in the declaration of economic independence from the sway of German chemical control.

These figures, however, do not tell the entire story. They deal with rough, or basic production, in grand totals, which at that are not complete. They give no conception of the finesse which the new-born American chemical industries have brought to bear in "out-efficiency-izing" the German industries at their own game. In the matter of dyestuffs alone, scientists throughout the country concede that this country now is producing dyes fully the equal, and in many cases superior, to those heretofore imported.

The United States Government today ranks as the largest chemical manufacturer in the world, through its investment in plants for the production of war chemicals. And added to this is private investment for commercial production of approximately $400,000,000 since 1914.

Leon R. Rowe, Inc., Boston, New York and The Hague, has been incorporated to manufacture, export, import and generally deal in wool, woolen and cotton waste and textile fibres of all kinds, with a capital of $100,000 (1,000 common shares). This concern will also specialize in dyes, dyestuffs, chemicals and machinery. The incorporators are Leon R. Rowe, Leo J. Madigan and Guy Murchie, each of whom holds one share of the stock.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

R. D. Co.—Question—Can you advise us who is manufacturing Sulphon Cyanine Black 2B in the United States?

Answer—This product was formerly manufactured by the Bayer Company in its German plants, but has never been, to the best of our knowledge and belief, manufactured in this country. We are told that this dyestuff is not now available in this country. The nearest approach to it which we know of is Durol Black B, manufactured by the National Aniline & Chemical Company, Inc. We are advised that this product answers a majority of the purposes for which Sulphon Cyanine Black 2B was formerly used in a quite satisfactory manner. If you will advise us the exact purpose for which you wish this dyestuff we will be able to better advise you as to whether or not the Durol Black B will be satisfactory.

B. C. G.—Question—Please inform me as to the chemicals and temperatures used for the preparation of Heimann's new sulphur dye.

Answer—Twelve parts of metatoluylenediamine, twenty parts of aminoazobenzine and eighty parts of sulphur are heated together during about four hours at 180 to 225 deg. Cent., and then to 250 deg. Cent. for one and one-half hours. The melt is treated in the usual way.

S. K.—Question—Can you forward me, by mail, a method for the determination of indigotin?

Answer—The best method for the determination is by titration with permanganate, and we are sending you the full details under separate cover.

J. C. K.—Question—We have a formula calling for the fusion of b-naphthol with sulphur and an alkali sulphide, and would like to know what color would result.

Answer—The color would be either very dark or almost black.

NOTES OF THE TRADE

The Wessex-Campbell Throwing Company has been incorporated at Allentown, Pa., to throw raw silk and twist and double wool, cotton and other fibres. Capital stock, $100,000.

E. R. Squib & Sons, Inc., New York, manufacturers of chemicals, are said to be planning for extensions. The company has acquired property at Columbia Heights and Vine Street, Brooklyn, about 150 x 600 feet, to be used, it is said, for the proposed expansion.

The Dye & Chemical Manufacturing Corporation, New York, N. Y., has been incorporated to manufacture dyes, chemicals, etc., with a capital of $100,000.

The Linion Aniline & Chemical Products Corporation has been incorporated at New York, N. Y., to manufacture dyes and chemicals. Capital, $25,000.

M. N. Smith & Son, Inc., Elizabeth, N. J., has been incorporated to manufacture and deal in wood carpet with textile back, etc. The capital is $100,000.

The Ohio Chemical Manufacturing Company, Cleveland, is planning for the erection of a new one-story addition to its plant, about 60 x 125 feet, estimated to cost $50,000.

The Wapite Textile Corporation, Paterson, N. J., has been incorporated with a capital of $100,000 to manufacture and sell fabrics and thread of silk, and deal in land and mills.

H. S. Henry & Company, Inc., Philadelphia, Pa., has been incorporated to manufacture, buy, sell and deal in cotton, worsted and woolen yarn, and cotton and woolen waste.

The Butterworth-Judson Corporation, Newark, N. J., has had plans prepared for the construction of a new dryer building at its plant, about 26 x 86 feet, to cost about $7,000.

The Northern Alkali & Chemical Company has been incorporated at Huntington, W. Va., to manufacture chemicals and allied specialties. The capital is $60,000.

The Twintex Underwear Corporation, Dover, Del., with a capital of $200,000, has been incorporated to manufacture cotton, velvet and silk articles.

The Allenby Silk Company, Strange Mill, Paterson, N. J., has been incorporated to manufacture and deal in silk, wool and other textiles. The capital is $50,000.

The Nico Chemical Corporation, New York, N. Y., has been incorporated to manufacture dyes, potash, chemicals, etc. The capital is $100,000.

To manufacture and deal in chemicals, Canadian Laboratory Supplies, Ltd., has been incorporated under the laws of Ontario with a capital of $40,000. Provisional directors named are Frank G. McKay, James H. Wilson and Harry B. Hall. Headquarters of the concern will be in Toronto.

AMERICAN DYESTUFF REPORTER

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By C. M. Whittaker, B.Sc.

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
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"Circulated Everywhere Dyestuffs are Used"

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DOCTORING THE TARIFF DIKE

How Leuco Leaks, Indoxyl Inlets and Such-like Openings in the Act of Sept. 8, 1916, Are Being Closed by Official Cement

"Wot makes th' tariff wabble so?" inquired the Color Trade.
"It's sprung a leak! It's sprung a leak!" the Dye Consumer said.
"Wot makes 'em write such 'orrid stuff?" inquired the Color Trade.
"To plug it up! To plug it up!" the Dye Consumer said.

For they're pluggin' up the tariff wall; they're 'ustlin' day an' night,
A-stoppin' gaps in 'opes, perhaps, to make it good an' tight.
And 'im as seeks for leuco leaks—or 'oles fer Bakelite—
Will find th' tariff's solid in th' mornin'!
—Coal-Tar Ballad.

MANY of our readers will doubtless recall the story of the heroic Holland boy who, waking from his slumbers somewhere along about midnight, heard a sound which fairly froze his blood, a sound for which all Hollanders are perpetually listening. It was the gentle gurgle and swish of water being forced through a small aperture.

Hurrying from his bed, he followed the sound until he had reached its source and his worst fears were realized. There was a leak in the dike!

Tiny though it was, he knew that the constant inrush of water would soon enlarge it; he knew that the effect would be cumulative, and that the faster came the water the faster would grow the opening until, matters getting beyond control, the collapse of that portion of the dike would ensue. And a broken dike meant that the region for miles around would be inundated, with much damage to property and probable loss of life. Without waiting to peer any further into the future he promptly inserted his finger in the opening. Then he called lustily for assistance, and plenty of it.

But the members of Amsterdam Local No. 7 of the Dutch Dike Defenders' Union were holding their grand annual banquet and ball down the street in Mynheer Van Pflannery's auditorium, and heard him not. The rest of the honest populace, being asleep, answered his shouts with heavy and authoritative Dutch snores. He was indeed out of luck that night, for History records that he failed even to arouse a policeman. But he stuck manfully to his post, his cries growing weaker as exhaustion overcame him, until at length he sank to the ground in a dead faint. And there they found him in the morning. He had stopped up that leak until assistance came.

Now, when the tariff wall of September 8, 1916, was erected, that portion of the structure known as Title V, which was especially designed to protect the sector occupied by the budding American dye industry, naturally became at once an object of close study by color makers and consumers alike. When the glaring light of public scrutiny was turned full upon it, no less than forty-five openings, some infinitesimal in size and others of more consequence, were revealed. But as the tide of German competition was then at ebb, there was little danger. Only the end of the war, followed by the rising tide of renewed commercial activities on the part of the Hun, could start those small streams which would eventually enlarge their openings until the country was again inundated and the infant industry drowned, so to speak, in its cradle. And ever since the signing of the armistice the ears of our dye makers have been cocked attentively toward the wall, listening for that faint trickling which would indicate the approaching flood.

But the Government was also aware of the danger, and Dr. Taussig, accompanied by his colleagues of the Tariff Commission, hitched up and drove to the scene at breakneck speed. Out came the official cement and, with Dr. Grinnell Jones' microscope to point out the less apparent openings, they plugged and caulked away until the structure was as nearly watertight as can be possible under the circumstances. Now all that remains is for Boss Congress to give the job his official O. K., and this he will doubtless do if it seems good to the industry at large.

Meanwhile, however, before this work was quite finished, these latter gentlemen came along with a project for the erection of a giant sea wall designed to do away entirely with the necessity for a dike. This was the suggestion that a licensing commission be appointed, which originated at the Washington meeting. Naturally enough the industry wants the best protection it can get, and this would seem to be the logical choice. In fact, we have it upon the authority of the Tariff Commission itself, that the amended measure would not be perfect, and it has the added disadvantage that it would require considerable time to plug up any fresh leaks which might appear. The reasons for this, which are far from being any fault of the Tariff Commission, have been explained at length by Dr. Taussig and others, and should be familiar to all.

Therefore, the present situation is simply one in which assistance sought by the Dutch boy arrived before the boy himself did. But the other project also awaits the O. K. of Congress, for both will be submitted to that body after undergoing the inspection of the trade. It is reasonably certain that the trade can have whichever one it wants, provided it can only agree with sufficient unanimity on one or the other and make it plain to Congress that harmony prevails. It is now squarely up to the trade to decide.

Should the Licensing Board fail to materialize, we shall still have the plugged-up tariff to fend off the floods. It may be regarded, then, in the light of something to fall back upon in case the main bulwark cannot be endorsed by the trade. In taking this attitude, we do not mean to withhold one whit of the credit due the Tariff Commission for the really splendid and painstaking work accomplished in preparing the amendments to the Act of September 8. It was very necessary and useful work, and it is indeed well to have this measure to fall back upon. We believe, however, that a Licensing Commission would provide a superior means of defence, and would urge that all elements of the industry weigh both projects carefully. When a decision is made it should be embodied in a resolution, unanimously supported if possible, and sent to the War Industries Board for transmission to Congress.

For the information of the trade, details of the Licensing Commission have been printed in these pages, and likewise the proposed amendments to the tariff as printed in the report issued by the Tariff Commission. We now propose to give a condensed version of the Commission's reasons for many of the forty-five changes proposed in the wording of the law. To give these in full would take up an entire issue of the REPORTER, but those desiring further details may send to Washington for a copy of the report, in case one has not already been sent them. The resume of the Commission's reasons for the changes follows:

GROUP I

This includes the crudes and is known as the "free list." There are seven amendments proposed.

1. The words "Pitch of blast-furnace tar" are added because the similarity gas tar . . . crude blast-furnace tar, crude oil-gas tar, crude water-gas tar" are added because the similarity of their distillates to those of coal tar renders it practically impossible for appraisers to distinguish between them.

2. The words "all mixtures of any of these distillates and any of the foregoing pitches" are added to insure the retention of such products on the free list instead of being classified under paragraph 5 of the Act of 1913.

3. Anthracene having a purity of 30 per cent, instead of less than 25 per cent, should come in duty-free in order to better carry out the intention of Congress to make the refined article

dutiable. This change resulted from closer investigations as to the degree of purity necessary in order to consider this crude a refined article.

4. Carbazol having a purity of 65 per cent, instead of 25 per cent, should come in duty-free for the same reason. At the time the original act was passed, the proper distinction between the crude and the refined article was not made.

5. The word "cresol" is to be omitted from the list of substances mentioned by name in Group I. This change will permit (a) the free importation of all specimens of commercial cresylic acid, except specimens containing an abnormally large amount of phenol, which would be profitable to remove, (b) make the decision as to whether any given shipment is free or dutiable dependent on a much simpler chemical analysis, and (c) prevent any product from which phenol may be commercially recovered from being admitted duty-free.

6. Meta-cresol having a purity of less than 90 per cent, orthocresol having a purity of less than 90 per cent, and paracresol having a purity of less than 90 per cent, are all to be omitted from the free list in order that the purified grades may be dutiable under Group II.

7. Cymene, a by-product obtained from the sulphite process of making wood pulp, is to be added to the free list because from it may be obtained a whole series of synthetic dyes. This substance was not taken into consideration when the original law was passed, but the attention of the Tariff Commission was called to it by Dr. E. W. Pierce, of the Zobel Color Works.

GROUP II

This includes the intermediates, which are dutiable at 15 per cent *ad valorem* and also pay a specific duty of 2½ cents a pound. There are 12 amendments proposed to this group.

8. Grades of benzaldehyde, benzoic acid, resorcin and salicylic acid not suitable for medicinal use must pay duty as intermediates, since dyestuffs can be made from them.

9. Salts of salicylic acid, as well as the acid itself, are to be added to the list, since they can be used for similar purposes.

10. Acetanilid not suitable for medicinal use falls under the same classification as the substances considered in No. 8.

11. Naphthol is to be omitted because the term is a group name covering the alpha and beta forms. Alphanaphthol and "betanaphthol not suitable for medicinal use" are to be substituted.

12. The spelling of such words as

"binitrobenzol" are to be changed to take the prefix "di-" in accordance with commercial practice. "Anilin salts" becomes "anilin salt," the proper term.

13. Substances covered by the clause "all similar products obtained, derived or manufactured in whole or in part from the products provided for in Group I," are mentioned by name in order to facilitate the gathering of statistics.

14. "Thiocarbanilid" is added to the list because of its potential importance to the rubber industry.

15. Important intermediates, such as sulphoacid derivatives of benzol, toluol and naphthalene, are added.

16. Because of its ambiguity, the word "similar" is taken out of the following part of the law, which is amended to read as follows: "all other products by whatever name known which are employed in the manufacture of any of the products provided for in Group II or III and which are obtained, derived or manufactured in whole or in part from any of the foregoing or from any of the products provided for in Group I."

17. This change is a repetition of the one mentioned in No. 5.

18. Sheep dip and medicinal soaps are omitted because there is no indication that Congress intended to cover them in the original act.

19. This amendment is explained under No. 21.

20. This amendment deals with the omission of a date clause to prevent ambiguity in the repealing clause.

Group III.

This includes the finished products, which are dutiable at 30 per cent *ad valorem* and 5 cents per pound. There are twenty-six amendments proposed.

21. The words "leuco-acids, and leuco-bases whether colorless or not, indoxyl and indoxyl compounds" are added. In this connection, Dr. Jones' speech at the recent meeting of the

American Institute of Chemical Engineers explains matters fully.

Dr. Jones said:

"Another possibility of evasion arises from the circumstance that certain commodities classed as intermediates, which in the Act of 1916 are in Group II, and are subject to a duty of 15 per cent *ad valorem* and 2½ cents a pound, are transformable into finished products at very slight expense and by very simple processes. There are, for example, certain intermediates called leuco-acids and leuco-bases (i. e., colorless compounds) which are not strictly dyes, yet have been carried in the process of manufacture to a point where only an insignificant and inexpensive operation is needed to convert them into dyes. Under the Act of 1916 they will inevitably be imported in the leuco state—not quite finished as dyes, but very nearly finished; they will subsequently be converted into dyes in this country cheaply and easily. They will be imported at the intermediate duty of 15 per cent plus 2½ cents, and will compete directly with completed dyes of domestic manufacture. A striking instance is that of indoxyl, an intermediate which is in the last stage in the succession of processes by which synthetic indigo is obtained. Indoxyl is a colorless substance, not a dye; but by the mere process of dissolving it in water and blowing air (oxygen) through it, the last chemical step in the production of synthetic indigo is completed and the commercial indigo is produced. Indoxyl is dutiable under the present act as an intermediate; indigo is dutiable as a dye. It is more than probable that, under the terms of the present act, importation will take the form of indoxyl; and this will be virtually the importation of indigo, competing with indigo of domestic manufacture. It is therefore recommended that indoxyl and leuco-compounds be made dutiable at the same rate as dyes."

22. "Ink powders" are added to the list. Dr. Jones tells us that "other forms of evasion for which remedies have been proposed include the importation of dyes as 'ink powders' at 15 per cent and the importation of artificial methyl salicylate as oil of wintergreen."

Additional of the more important changes, with reasons therefor, were described by Dr. Jones as follows:

"The commission takes the view that when Congress levied a duty of 5 cents per pound on dyes it intended the duty to apply to the usual commercial strength of dyes, and that the practice of importing dyes in a more concentrated form and diluting to the usual commercial strength after passing the custom house is an evasion of the intent of Congress. The commission recommends legislation which is intended and expected to stop this practice, and which will make it easier for the appraisers to prevent undervaluations. This involves a stand-

(*Continued on page* 12.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

TRADE CONDITIONS IMPROVE

Beginning almost immediately after the armistice was signed, and continuing until after the turn of the new year, there was evident throughout the dyestuff trade — and, in fact, throughout nearly all other industries as well—a spirit of uncertainty and hesitation on the part of both consumers and manufacturers which, for the time being, seemed to augur no good for the dyestuff industry.

It is a great satisfaction to be able to report that this wave of doubt seems now to have spent itself and that all the latest indications are to the effect that confidence is returning slowly but with constantly increasing force. This is quite as it should be, and is, in itself, an excellent omen for the future. A period of hesitation now and then is a good thing for any progressive movement. It affords an opportunity for all interests to take account of stock and tends to restrict overconfidence, which is oftentimes the forerunner of disaster.

It is but natural that, at the conclusion of a condition of world conflict which had existed for over four years and during which the American dyestuff industry had sprung into being, both consumers and manufacturers alike should have felt some doubt as to what the new state of affairs would bring forth in terms of their own business activities. It is gratifying to observe that the trade now seems satisfied that no disaster is impending and is beginning once more to view the future with customary American optimism.

As a matter of fact, there never was any occasion for alarm and none should have been felt. The end of the war and the consequent release of needed raw materials and chemical talent meant that the development of new products could be prosecuted with renewed vigor. Whereas the purchasing of equipment for the army and navy would naturally decrease in volume, there was waiting a tremendous need for goods of all kinds for civilian use which had been deferred because of war-time conditions. This great civilian demand is only beginning to make itself felt, and will grow in volume as our military forces are demobilized. As for foreign competition in the dyestuff field, there is no possibility of any considerable activity on the part of German plants for at least a year to come, and it may be confidently expected that long before the Teutons are in any position to invade our markets we will have protected ourselves by suitable legislation, both in the way of the tariff and of a licensing board.

COMPETITION AND GRAFT

It has been repeatedly stated that the chief curse of the dyestuff business as conducted by the German firms was the prevalence of graft. It has been reluctantly admitted that some of our American manufacturers have been equally guilty in this respect. There is no defense for this practice. It is bad for everybody concerned—except, perhaps, for the one who receives the gratuities, and he deserves no consideration. Certainly it is bad for the one who gives the bribe, as it increases his overhead out of all reason. And it is doubly hard on the one who tries to do a legitimate business, as it forces him to meet unfair competition.

Everyone who has the best interests of the industry at heart believes graft should be eliminated. The question is how to do it. There is only one thing that will cure it, and that is unsparing publicity. Every honest

man in the industry ought to make it his duty to expose every case which comes to his attention and to investigate every suspicious transaction. There is no question of "squealing" in such a matter. Connivance or even lulling one's suspicions makes one equally guilty with the offender. If we all get together and make up our minds to stop this thing it can be done. Let's do it!

TARIFF RECOMMENDATIONS

(*Continued from page* 8.)

ardization of dyes under the direction of the Secretary of the Treasury, with a provision that the 5 cents per pound duty shall be levied on the basis of these standards. There is a further provision modeled on the misbranding clause of the pure food and drug acts that all imports shall be truthfully labeled in such a way as to show the identity and strength of the dyes. This provision will prevent the importation of German dyes under Swiss names.

"Under the present law the 5 cents per pound specific duty is not imposed on many important dyes, including indigo and indigoids, alizarin and the vat dyes for cotton derived from anthracene and carbazol, nor on medicinals and flavors. The commission recommends that the specific duty of 5 cents per pound shall be levied on all dyes, medicinals and flavors.

"The present law contains a provision for 'synthetic phenolic resin,' which was evidently intended to cover such articles as Bakelite, Condensite and Redmanol. This phrase presented one of the most perplexing problems in the entire bill, because the present language is not adequately descriptive and may be interpreted in a way which is unduly restrictive. The articles referred to are not identical with the true natural resins, such as amber, kauri or rosin, and it is therefore questionable whether they are properly described as 'synthetic resin.' Moreover, the term 'phenolic' is unduly restrictive, since there are products not made from phenol which are similar to, and compete with, the products made from phenol.

"It is a general principle that goods should be described in the tariff law in the language ordinarily used in commerce, but in this case this principle cannot be applied, because trade names are in almost universal use. After much correspondence with all the manufacturers and others familiar with these products, the commission invited each manufacturer to send a representative to a general conference, where there was a three-hour discussion of the whole problem. The amendment which is suggested as a result of this conference, although not free from objection, is believed to be a great improvement over the phrasing in the present law. The amendment proposed is as follows:

"'In place of "synthetic phenolic resin," substitute the following: "Synthetic phenolic resin and all resin-like products prepared from phenol, cresol, phthalic anhydride, coumaron, indene, or from any other article or material provided for in Group I or II, all of these products whether in a solid, semi-solid or liquid condition."'

"In the hope of encouraging the growth of a new infant industry in the United States, the commission also recommended that synthetic tanning materials be added to Group III at 30 per cent plus 5 cents per pound.

"You will recall that specific duties of 2½ cents per pound on intermediates and 5 cents per pound on finished products are referred to as special duties, and that the present law contains a provision which reads:

"'If, at the expiration of five years from the date of the passage of this act, the President finds that there is not being manufactured or produced within the United States as much as 60 per centum in value of the domestic consumption of the articles mentioned in Groups II and III of Section 500, he shall, by proclamation, so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied or collected.'

"The commission points out serious difficulties in the administration of this provision, and recommends that this clause be repealed.

"The next report to be issued by the commission on chemical subjects will deal with a group of acids covered by paragraph 1 of the tariff act, including boric, formic, oxalic, lactic, citric, tartaric, tannic, gallic and pyrogallic acids. This report will discuss the competitive conditions in these industries. A similar report dealing with the heavy chemicals is also under preparation, but not so far advanced, and the ground work is being laid for still other reports. The commission will welcome the co-operation of the members of the American Institute of Chemical Engineers in giving us information and suggestions which will be helpful in the preparation of these reports."

The Alliance Pierce Dye Works, which was recently incorporated with a capital of $40,000 under the laws of New Jersey, will engage in business as dyers, renovators and cleaners of fabrics and materials. The incorporators consist of Claudius Ugnon, Emile J. Ozanne and George V. Hart, while the works will be located in Paterson.

A. Kid & Company, Limited, Toronto, Ontario, has been incorporated to manufacture wool and other textiles and yarns, with a capital of $400,000.

COLOR EFFECTS ON KHAKI UNIFORM CLOTHS

By C. M. Whittaker, B.Sc.

It is, of course, understood that when hostilities cease the army authorities will have large stocks of khaki cloth in reserve and in course of manufacture. At first sight it might seem difficult to get rid of khaki, because it is safe to say that the men in the army will be heartily sick of the color by the time they are demobilized. They will see to it that their civilian clothes are as far removed from the shade of khaki as it is possible to get.

Very few people are able to realize the large amount of clothing which will be required to give the demobilized army one civilian suit and one civilian overcoat per head. To give five million men one suit will require twenty million yards of cloth; then there is the overcoat. Added to this, all the people in the recently liberated war areas of France and Italy require to be refitted with clothes, to say nothing of the Russians in the present chaotic condition of their country, while all the enemy countries are completely denuded of stocks of clothing. The question will not, therefore, be what to do with khaki cloth in stock, but how to get hold of sufficient cloth. The question arises, therefore, how to convert the khaki cloth into shades which will be suitable for civilian wear. Fortunately, the range of shades which can be obtained on khaki uniform cloth is a wide one, so that there is no fear of the men not having a big choice of shades.

In the first place, it is possible to dye a large range of pleasing two-color effects on the cloth which look as if these effects had been obtained in the usual way by weaving up different colored yarns. This is made possible by the fact that the average khaki blend consists of heavily-chromed wool, medium-chromed wool, and non-chromed wool. Cloth made from such a blend will naturally give a mottled effect on being dyed with suitable mordant colors, which will develop different depths of shades on the various mordanted and unmordanted wool in the cloth. The clarity of the effects obtained depends entirely on the way in which the blend has been compounded. With so many manufacturers having made khaki, it follows that there is a great variation in the effects obtained on the different cloths. It must, therefore, be understood, in considering the recipes given below, that the result obtained may vary largely on khaki cloths from different sources.

The principle obtaining in the dyeing of two-color effects is to use a mordant color which will dye the chromed wool strongly without staining the unchromed wool to any marked degree, and to shade the non-mordanted wool portion of the blend with some sharply contrasting acid color. Mordant colors which posses the property are: Hematine, Alizarine Red, Gallo Cyanine B D, Alizarine Orange M. paste.

I will now proceed to give some

recipes which may be varied ad lib. to get differences in effect.

Black and Dark Brown Two-Color Effect

3%	Hematine Crystals.
0.7%	Orange G.
0.1%	Orange IV.
20%	Glauber's Salt.
2%	D. O. V. Or 8% Nitre Cake.

Enter warm, raise to boil, and dye at the boil ½-hour.

At first sight one will ask why use D. O. V. with Hematine Crystals? Experiments have shown that the Hematine will dye on with 2 per cent D. O. V. in the dye bath, but if the amount is increased beyond this percentage the Hematine will not dye on. It must be remembered that the overcoatings are waterproofed, and that this will absorb acid, since many are waterproofed by means of soap and aluminium acetate.

Black and Brown Effects not so dark as the previous recipe:

1%	Hematine Crystals.
0.6%	Orange G.
0.2%	Orange IV.
20%	Glauber's Salt.
2%	D. O. V.

And

¾%	Hematine Crystals.
0.6%	Orange G.
0.2%	Orange IV.
20%	Glauber's Salt.
2%	D. O. V.

Red and Black Two-Color Effect:

½%	Hematine Crystals.
2%	X L Carmosine 6 R.
¼%	Orange G.
20%	Glauber's Salt.
2%	D. O. V.
2.65%	X L Carmosine 6 R.
0.35%	Orange G.
20%	Glauber's Salt.
2%	D. O. V.
½%	Hematine Crystals.
2%	X L Carmosine 6 R.
20%	Glauber's Salt.
2%	D. O. V.

It must here be explained that X L Carmosine 6 R is one of the reds of the Chromotrope series in that it is changed over to a navy blue by the action of bichrome. In khaki cloth the heavily-mordanted wool changes the X L Carmosine 6 R to more or less of a blue which, in conjunction with the small quantity of Hematine and the khaki color of the wool, gives a black, whilst the non-mordanted wool is dyed red, and so yields the two-color effect.

Two-Color Heather Mixture Effects:

½%	Alizarine Red paste.
½%	Alizarine Red paste.
0.05%	Acid Violet.
½%	Alizarine Red paste.
¼%	Acid Violet.

Owing to the sensitiveness of Alizarine Red to acids, these patterns require to be dyed in a neutral Glauber's Salt bath, and therefore the choice of contrasting Acid Colors is limited to those like Acid Violet, which have a good affinity for wool in a neutral bath.

Mottled Grey Effect:

2% Gallocyanine B D paste.
Enter lukewarm, raise to boil and dye boiling one-half to one hour.

Mottled Grey Effect bluer than above:

2% Gallocyanine B D paste.
½% Alizarine Delphinol S E.
3% Acetic Acid.

Steel-Grey Mottled Effect:
¾% Alizarine Delphinol S E.
¼% X L Carmosine 6 R.
20% Glauber's Salt.
3% D. O. V.

Blue-Grey, heavier than above:
5% Gallocyanine B D paste.
3% Acetic Acid.

Mottled Green Effect:
1% Alizarine Delphinol S E.
20% Glauber's Salt.
3% D. O. V.

Olive Green Mixture Effect:
4% Alizarine Orange M paste.
1% Acid Green 83583.
10% Glauber's Salt.
5% Acetic Acid.

Solid effects in ladies' shades are very easy to obtain by dyeing with a heavy percentage of bright acid colors. In these full shades the mottled effect of the khaki is covered and a solid shade obtained.—*Dyer and Calico Printer.*

LITTLE ACTION AT A. D. I. ADJOURNED MEETING

The report of the Nominating Committee of the American Dyes Institute was considered at an adjourned meeting of that organization held last Thursday at the Biltmore, but no election of officers has as yet taken place. Voting was confined to the choice of a board of governors and an executive committee, while officers will be named and uncompleted business transacted at another meeting, also to be held at the Biltmore, on Friday, February 7.

THE ARMISTICE AND THE ANILINE COLOR MARKET

Due to several important factors, the market for aniline colors since the signing of the armistice has shown very little variation in price. The producers at the time of the armistice were well behind in deliveries and stocks in the hands of consumers were small, except for colors used in the production of khakis. There has, therefore, been no change of moment in selling prices, and there will be none for some time. It must be remembered that all producers have very large quantities of raw material in process, purchased at the highest war figures. It will be some time before these stocks are on the market. It also must be recalled that much plant construction is under way at war prices and not yet paid for, which must enter into costs. It is true that some raw materials, notably benzol and acids, which enter into the production of colors, have already been shaded in price, but the labor cost is still as high as during the war, and for the reasons given it will be some months before the lower prices for acids and benzols will be reflected in the cost of the finished color. In the Far East, notably in China, Japan and India, there has been a semi-panic amongst the distributors of colors, due to a lack of knowledge of the situation in the American market. As soon as the eastern merchants learn of the stability of the American market, the far eastern situation will right itself, for America is the chief producer of colors to-day and supplies a large part of the world outside of England.—*Wool and Cotton Reporter.*

NOTES OF THE TRADE

The Takamine Industrial Company, Ltd., 120 Broadway, New York City, sends out the following announcement to the trade:

"Having in mind the after-the-war trade and anticipating its broader scope, we have deemed it advisable to incorporate under the title Takamine Industrial Company, Ltd., the export and import business of Takamine Laboratory, Inc., heretofore conducted from this address. This new organization, capitalized at $1,500,000, will retain the same personnel as heretofore with Dr. Jokichi Takamine as president.

"The Takamine Laboratory, Inc., under its old corporate organization, will be continued as manufacturing chemists with factories at Clifton, N. J., and a New York office at 12 Dutch Street.

"We feel confident that the arrangements now consummated will assure our patrons the highest possible service."

Following the purchase of the Bayer Company from Alien Property Custodian A. Mitchell Palmer, stockholders of the Sterling Products Company, Wheeling, W. Va., voted to increase the capital of the concern from $4,000,000 to $7,500,000. As has already been announced, the dyestuff end of the Bayer business has been purchased for $2,500,000 by the Grasselli Chemical Company.

Application has been made by Aniline Dyes and Chemicals, Inc., Cedar and Washington Streets, New York City, for an increase in the company's capital stock from $800,000 to $1,000,000. The increase, according to a statement issued by the concern, is to be devoted to a general expansion of the business of the company.

With a capital of $400,000, the Suckow Chemical Company has been incorporated under the laws of California. The incorporators are John K. Suckow, Otelia Suckow and George S. Greene. Headquarters of the firm will be located in Los Angeles.

To manufacture chemicals, the Koppers Products Company has been incorporated under the laws of Delaware. The capital of the new concern is announced to be $50,000, and the incorporators are C. L. Rimlinger, M. M. Clancy and P. B. Drew, all of Wilmington. Headquarters will be located at Dover, Del.

With a capital of 250,000, the Laboratories Products Company, Inc., has been incorporated under the laws of New York by J. I. Wheaton, R. B. Whitehead, of 253 Broadway, New York City, and H. Amerman, 485 Putnam Avenue, Brooklyn. The head office of the company will be in New York City.

To manufacture colors and chemicals, the Elk Color and Chemical Company has been incorporated under the laws of Delaware with a capital of $500,000. Headquarters will be in Dover, that State. Incorporators are W. I. N. Lofland, Charles H. Jones and Andrew Urman.

On the last day of 1918 an explosion, followed by fire, completely destroyed the tar distilling plant of Bryan I. O'Neill, Third and Union Streets, Allentown, Pa. The structure was 30 x 60 feet, and was formerly occupied by the Plus Oil Company.

Announcement has been made by the New York Color and Chemical Company that the sale of its dyestuffs in the Boston and Providence districts will in future be handled by the G. R. Smith Color Company, located at 143 Federal Street, Boston, Mass.

AMERICAN

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"Circulated Everywhere Dyestuffs are Used"

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THE BRITISH LICENSING SCHEME

A Resume of the Various Factors in the Organization and Administration of England's Plan to Protect Her Dye Industry

JUST as was predicted, discussed, thought over and dreamed over for so many weary months, the war has ended, and with it the artificial protection afforded the debutante American dye industry. And in full accordance with the burden of reams of printed matter and hours of eloquence, the question of how best to shield the industry from foreign invasion, now that the false bulwark has been withdrawn, is uppermost in the minds of all those connected in any way with the industry.

At the present time there are two means of protection offered. One consists of the adoption of an extremely high tariff. The other involves the appointment of a licensing board along the lines suggested at the Washington meeting nearly two months ago. For the benefit of readers of this publication, and for their guidance toward a better comprehension of the limitations of tariff protection, we have already printed in these pages the full text of the amendments to the present tariff law proposed by the Tariff Commission, and later a condensed version of the Tariff Commission's reasons for many of these changes. We now propose to offer them a concrete idea of what the appointment of a licensing board would mean, and since the British have already worked out an excellent scheme for the protection of their dye industry by this means, we cannot do better than to describe the organization and administration of the scheme.

As outlined in a memorandum furnished by Mr. M. R. Poucher, of the Du Pont Chemical Works, the entire organization falls primarily under the official eye of the British Board of Trade, and is responsible to that body for its actions. The Board of Trade constitutes a court of final appeal on such questions of policy as the organization may be unable to agree upon, and it likewise has much to say concerning the appointment of various members of the organization.

Immediately beneath this body in authority is an individual known as the Dyes Commissioner. He is directly responsible to the Board of Trade for the administration of the scheme and the formulating of recommendations for the award of loans and grants. He is advised and assisted by two committees and two other officials, consisting of a Loans and Grants Allocation Committee, a Trade and Licensing Committee, an Inspector of Research and an Inspector of Accounts.

Of the two committees, the Trades and Licensing Committee is the more important. This consists of nine members, four of which represent color users and four of which represent color manufacturers. The ninth member, the chairman, is selected from the Board of Trade, and thereby holds the deciding vote and the balance of power. The Dyes Commissioner himself acts as a tenth member, but merely in an *ex officio* capacity. He has no vote. Of the four representatives of color users, one is appointed by the National Federations of Paint, Color and Varnish Manufacturers, and the other three are appointed by the Color Users Committee. They may be members of the respective trades concerned as color users, but must not be dye manufacturers or connected with any dye manufacturing business. The mere holding of shares in a dye manufacturing business is not, however, considered a disqualification for membership. Of the four representatives of the color manufacturers, one is appointed directly by the Board of Trade, one is appointed by the Dyes and Intermediates Section of the Association of British Chemical Manufacturers, and the remaining two are jointly selected by those two famous color firms, British Dyes, Ltd., and Levinstein, Ltd. Failing a nomination by any of these organizations, members of this committee may be appointed by the President of the Board of Trade. The manufacturers who are eligible are those whose business is mainly the production of finished dyestuffs and the advanced intermediates directly required for their production. The production of the primary intermediates, or crudes, such as benzol, toluol, phenol, anthracene and similar products, does not make the producer eligible for membership.

The functions of the Trades and Licensing Committee are twofold. The first of these is to determine what colors and intermediates shall be licensed to be imported into the country, and in what quantities.

This brings into existence another committee, to be known as the Licensing Sub-Committee. This is responsible to the Trades and Licensing Committee proper, which is responsible to the Dyes Commissioner, who in turn is responsible to the Board of Trade. (Forgive us for rehearsing this, but it brings out more clearly the relation of the integral parts of the scheme to each other-. The Licensing Sub-Committee consists of four members, two of whom are taken from the four color users of the Trades and Licensing Committee, and two from the four color manufacturers of the same body. The authority of chairman of this sub-committee is vested in the Trades and Licensing Committee, subject to the final authority of the President of the Board of Trade.

The other function of the Trades and Licensing Committee consists in determining and advising the Dyes Commissioner as to what colors and intermediates the domestic manufacturers should be encouraged to produce, in the order of their importance.

We shall now leave the Trades and Licensing Committee temporarily and turn our attention to the Loans and Grants Allocation Committee. This consists of seven members, six of which are appointed by the Board of Trade, and having as chairman the Dyes Commissioner. The functions of this committee are, as may be guessed from its title, to consider the allocation of loans and grants and to make recommendations thereon.

The duties of the Inspector of Research are to examine and to report to the Dyes Commissioner on all schemes of technical research in connection with the manufacturing works which come under the scheme.

The duties of the Inspector of Accounts are to examine the accounts and financial position of all applicants for loans or grants, the estimates of expenditures on new works, statistics of output, the accounts of expenditures made out in loans and grants, and any other relevant matter of accounts. He is required to report his findings to the Dyes Commissioner, and may have for an assistant an Inspector of Plant and Buildings.

This covers the position and functions of the principal officials and committees concerned in the administration of the scheme. To return to our discussion of the general scope of the scheme and of the Trades and Licensing Committee, the British Board of Trade is prepared to furnish to manufacturers a list of approximate quantities of the colors imported into the country in the year 1913, and a separate list of such colors as are not at present being made in the country, or not being made in sufficient quantities to supply the demand, and which, on the advice of the Trades and Licensing Committee, they consider are essential to meet the requirements of consumers.

The manufacturers, in turn, are invited to submit to the Dyes Commissioner proposals for the production of such groups of these colors as they consider they can successfully manufacture. The proposals must give clearly the following facts:

1. The particular group or groups of colors and the approximate annual quantity of each which applicants will undertake to manufacture.

2. The time in which it is estimated that the proposed outputs can be attained. In this connection, however,

the time which will elapse between an application for priority for materials or for a license for building, giving the full particulars and details, and the receipt of such priority, certificate or license by the manufacturer, will be counted additional. For this purpose, priority shall be estimated on a war-munitions basis and a further three months from the date of the receipt of the certificate, or license, shall be added for obtaining the materials to the time estimated by the manufacturer. Where the manufacturer can show to the satisfaction of the Board of Trade that the materials cannot be obtained within three months on initial priority, the Board will either obtain a higher priority, or the additional time required shall be further added.

3. The estimated expenditures on any extension of equipment plan, or buildings to be devoted wholly or mainly to the production of the specified colors.

4. An account of any expenditures already incurred, either wholly or mainly for the same object.

5. An estimate of the actual depreciation due to special wear and tear in the process of actual manufacture in addition to the depreciation due to the ordinary wear and tear of analogous plant not subject to chemical influences. This estimate of the depreciation is to be expressed in terms of the annual proportion of useful lifetime, and is not to take into account any allowance for obsolescence or increased first cost due to war conditions.

6. The annual balance sheets, profit and loss, and revenue and expenditure statements of the applicants, from and including the year 1914, or from the commencement of the business, whichever is the lesser period.

7. A statement showing (a) the number comprising the technical and scientific staff employed, describing their qualifications and employments, and distinguishing between those employed in manufacturing operations and those employed in technical research, (b) particulars of the works laboratory and scientific equipment attached to the manufacturer's works, and (c) particulars of any provision made for technical research, whether such research is attached to the works or is separate therefrom.

8. A statement of the production of all kinds of dyes and intermediates for the twelve months ending September 30, 1918, where such information has not already been furnished to the Board of Trade on the Monthly Census of Production returns.

Further general details of the administration of the scheme provide that the particulars of the classes of dyes and intermediates for the manufacture of which proposals may be received, shall be referred by the Dyes Commissioner to the Trades and Licensing Committee, so that the latter may make recommendations as to the extent to which the manufacture of any product embraced in the proposals shall be undertaken.

The Trades and Licensing Committee will also consider and make recommendations as to the extent to which, if at all, it may be desirable to limit the production of other dyestuffs, particularly those already in sufficient supply, in order that some portion of the resources utilized in their production shall be diverted to the production of those dyestuffs more urgently in demand. The committee will have at its disposal, from returns compiled by the Board of Trade, particulars of the general production of dyestuffs in the country.

The report of the Trades and Licensing Committee shall be submitted to the Loans and Grants Allocation Committee after investigation by the Dyes Commissioner of the particulars put forward by the applicant, and the committee will recommend what amount of loan or grant, if any, on account of buildings and plant, shall be made to any particular applicant having regard to the amount of the funds at the disposal of the Board of Trade for the purpose and to the principles laid down above.

Applications for grants in aid of research will, in the first instance, be referred by the Dyes Commissioner to the Inspector of Research, who will report thereon, and they will then be submitted, with the Inspector's report, to the Loans and Grants Allocation Committee, which will recommend what grant, if any, shall be made.

All recommendations for loans or grants will be subject to the final approval of the Board of Trade.

MUNITIONS OF WAR TO MUNITIONS OF PEACE

By Stanley F. Withe

History will record as one of the greatest achievements in the chemical industry of the United States during the war the building of three great plants—Hopewell, Nashville and Deepwater. While two of them played a major part in bringing the war to a successful ending, the third, in a less spectacular fashion but in the face of even greater difficulties, laid the foundation for a development which guarantees that in the commercial war which unquestionably will follow, Germany's chief weapon—her dyestuff industry—will be broken.

Nothing illustrates better than the development of these three plants the close relation between the making of explosives and the manufacture of coal tar dyestuff and the dependence of one upon the other. Now that the war is over their story may be told.

It goes without saying that at the beginning of the war the first great need of the Allies was for explosives. The total capacity of all the plants of the Du Pont Company—1,000,000 pounds of smokeless powder a month—though large when judged by previous standards, was insignificant in the light of the requirements of modern warfare.

There was no time for delay. Without explosives quickly and in ever increasing quantities the Allies faced annihilation. Hopewell, Virginia, built by the engineers of the Du Pont Company in record breaking time, filled the gap and is officially credited with having saved the cause of the Allies. The demands upon the company increased until they aggregated 440,000,000 pounds of smokeless powder a year, and every one of these demands were met.

When the United States entered the war the existing facilities were entirely engaged in taking care of the needs of the Allies, and were utterly insufficient for the requirements of our own rapidly growing army and navy. Increased capacity was needed and needed quickly. In March, 1918, the Nashville, Tennessee, plant was started. Five months later it was in operation—the most wonderful achievement ever performed in the history of powder making.

Built by the Du Pont Company at a cost of $80,000,000, without a cent's worth of profit, Nashville is to-day the greatest smokeless powder plant in the world. It is seventy times as large as the largest smokeless powder plant in the country before the war, with a capacity of 1,000,000 pounds of smokeless powder a day. Twenty-five thousand men were employed in the construction of this enormous plant, which consumes daily 1,500,000 pounds of nitrate of soda, 675,000 pounds of sulphur, 4,500 tons of coal and 100,000,000 gallons of water.

The third great plant built by the Du Pont Company during the war is the dyestuff works at Deepwater Point, New Jersey. The causes which led to its building are now too well known to be more than touched upon here. When, in 1915, imports of German dyes abruptly stopped, the various dyestuff consuming industries, aggregating $2,500,000,000 in invested capital, faced a crisis which is well remembered by everyone. The situation, with disaster looming ahead, was in reality a blessing in disguise, for it brought home to manufacturers and consumers with striking force the realization that if America was to be other than a vassal of Germany commercially, she must achieve independence in the dyestuffs industry.

The Du Pont Company had never before been in this particular branch of the chemical industry, but it was felt there was a sound foundation upon which to establish the new industry. It had first, the necessary chemical and engineering organization. It is not generally known, but the Du Pont Company, during the war, had in its employ over 1,200 graduate chemists or about ten per cent of the total number in this country. Secondly, the Du Pont

Company has access to the necessary raw materials, derived as by-products of the coking industry, which were utilized in large amounts in the making of military high explosives. Thirdly, it had exceptional plant and laboratory facilities.

On July 1, 1917, preliminary preparations were completed and the construction of the plant at Deepwater was begun. The building of this great plant in the face of almost insuperable obstacles is an achievement of which every American can well be proud. What the difficulties were will never be known. Suffice it to say that as the principal reliance, both of thic country and our Allies, for explosives, the first aim of the Du Pont Company was to make munitions of war. The manufacture of dyestuffs was of necessity relegated to second place. In the supplying of men, equipment and raw materials, Nashville and Hopewell took precedence over Deepwater.

Nevertheless the dyestuffs development of the company went on slowly but surely. Within ten months there was erected an indigo plant at Deepwater capable of supplying the entire needs of the United Staes and Canada, and it was producing synthetic indigo equal in quality to the best formerly imported. , Other colors have been produced so far as has been possible with the crudes and intermediates available.

With the ending of the war the situation, so far as the Du Pont Company is concerned, is rapidly changed. The entire resources of the company—men, capital and manufacturing facilities—can now be devoted to the manufacture of munitions of peace. The release of labor from munition plants, hitherto unavailable supplies of crudes and intermediates, the possibility of securing men trained in the closely allied explosives industry and of making needed extensions in plant facilities mean, from now on, rapid development in the Du Pont dyestuffs industry.

The following statement by Mr. P. S. Du Pont, president of the Du Pont Company, as to the part this company will play in the reconstruction of America's industries is fraught with significance.

"The Du Pont Company is glad beyond measure of the opportunity to turn from the manufacture of munitions of war to the manufacture of munitions of peace.

"Now that victory has most happily crowned our arms, let us as patriotic Americans, victors in the gigantic world struggle for civilization, face the reconstruction period in the same spirit as that with which we faced the war. This country met the shock of war without panic, or any serious disruption to our economic life. We must meet the shock of peace in the same spirit, with full confidence in our ability to work our way back to normal in a quiet, orderly, business-like way.

"Labor and capital alike have opportunities awaiting them. The suspended activities of the nation must

(*Continued on page* 12.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

A TOOTH FOR THE INFANT INDUSTRY

The American dye industry, being an infant industry, has in the past come in for much of the coddling and petting which falls to the lot of all infants. Its proud forebears and parents have watched with bated breath its infantile efforts to get upon its feet, followed by its first, uncertain steps, and have gleefully recounted to each other and chortled over its precocious achievements, while a smilingly indulgent avuncular Government has, from time to time, assisted its struggles to "grow up."

Now all its well-wishers are eagerly expecting it to cut its first tooth. The customary teething ring has been provided in the personnel of the German Dye Ring; the necessity for teeth—a whole set of extra sharp ones, in fact—is plainly apparent, and the age of the youthful prodigy is auspicious. Teeth are weapons of defense as well as tools for mastication, and a razor-edged, sharp-pointed tooth in the shape of a licensing board ought to be produced without delay.

Elsewhere in these pages will be found a detailed description of the means by which such a thing was established in Great Britain, whose dye protection problems are similar to our own, together with data relative to the functions of the British Trades and Licensing Committee and its allied organizations. The merits of the scheme need little in the way of clarification to recommend them; they are as plain as a maiden aunt and require no demonstration to prove the ease with which they could be adapted to meet our own necessities.

The attitude of this publication on the choice between dependence upon an extremely high tariff and the creation of a licensing board to protect the industry is well known. A thorough analysis of the British scheme should convince all elements of the industry, we believe, that there is no comparison. To sum up the situation in a few words, a licensing board would protect the manufacturer of dyes by excluding from this country the colors which he is already making, and it would protect the consumer by permitting the entrance of such dyes as the manufacturers are not at present turning out, thereby assuring a range of colors for selection entirely adequate to the consumer's needs.

The flexibility of such a board, as compared to a protective tariff, is as that of a rapier to a baseball bat. The man armed with the former can strike effectively in three places while his antagonist with the bat is preparing to strike in one. In the case, for instance, of a color not made here, the consumer will have no difficulty in obtaining a supply, for the board can admit it, duty-free if necessary, in order to assure a sufficiency. As soon, however, as someone within our borders begins to turn that color out, in limited quantities, let us say, the board can shut off, almost overnight, sufficient of the imported article to maintain the total supply available in this country at its former level, and at the same time provide a market for the domestic manufacturer's output. If this increases, or the demand increases, the matter can again be adjusted at once. With the protection provided by a tariff wall alone, months of delay are sometimes necessary in order to effect a change, and this is coupled with much opposition and conservatism to be overcome.

It is sincerely to be hoped that the expected tooth of the infant American dye industry will take the form of a licensing board with administrative

powers and full authority to license or prohibit the admission of all imports which in any way affect the industry.

MUNITIONS OF WAR TO MUNITIONS OF PEACE

(*Continued from page* 9.)

be resumed and this resumption can be brought about without hardship to any one if we undertake it in the true American spirit.

"The leaders of American industry have demonstrated to their world their ability to carry the stupendous burdens of war and at the same time to keep the machinery of civil life in working order.

"Labor has shown its adaptability to the meeting of emergency and it has only to show the same spirit now in readjusting itself to the new conditions which we are facing.

"America is in a better financial condition than ever before in her history. Opportunities for business expansion are great, and this means that labor which has been employed in war industries will find new outlets for itself as fast as these industries suspend operations.

"Many details of the nation's business organizations have been planned already. It remains only for a harmonious effort to put them into effect.

"It has been the privilege of E. I. du Pont de Nemours & Company to take a substantial part in the winning of the war. It has built up an organization and a great army of loyal workers, who, in splendidly meeting the crisis, have followed out the best American traditions.

"Of course, as the demand for munitions lessens, this army must be fed back into the ranks of ordinary industry. The Du Pont Company has been looking forward to the time when the war should end and it expects to take as prominent a part in the new development fields as it has taken in the emergency work of the last four years."

SOFTENING AGENTS

By F. E. Burnham

A preliminary examination shows that, in general, commercial cotton softeners are composed of water, soap and oil, or, as it may be considered, an emulsion of oil in a concentrated solution of soap. Other substances may be present, but, with the exception of glycerine, are of no value, sodium silicate, rosin, starch and clay, for instance.

Both soda and potash soaps are used according to the properties desired in the softeners. For a cheap softener the lower cost of the soda soap recommends itself, and when used with an oil of low melting point fairly good results are obtained, especially if there is much glycerine present to furnish the rather essential property of hygroscopicity. The hardness of the soda soaps also gives a certain body to the fibre. In general, however, it is claimed that soda soap softeners are not so efficient as the potash soap softeners, because the soda soap has a tendency to dry out, and thus make harsh the feel of the fibres rather than to produce the contrary and desired effect. A certain advantage which soda soaps possess, however, should not be overlooked--namely, that because of their solidity they form a protective covering over the oil in the fibre, and thus prevent its turning rancid.

Because potash soaps are soft and deliquescent, they are generally to be preferred as softeners, their superior efficiency offsetting the lowest cost of the soda; but by reason of the tendency of many oils to go rancid and develop disagreeable odors, the range of oils which it is possible to use with a potash soap is more limited than is the case with soda soaps.

The choice of the alkali in the soaps used, however, is dependent, to a large degree, on the oil used, whether present as combined fatty acid or as free oil. Mineral and fish oils are necessarily excluded; the former because they are unsaponifiable, the latter from the bad odors developed on drying them, and because of their gumminess.

The field of animal and vegetable oils is a wide one, with cost of much importance. Olive, cottonseed, maize, sunflower, peanut, palm and cocoanut oils are all usable vegetable oils. Tallow, both beef and mutton, lard, tallow oil, red oil and lard oil are all suitable animal products.

The selection of a suitable oil is dependent on the cost, the melting point, the freedom from tendency to turn rancid and the absence of unsaponifiable matter and hydroxy acids. All desirable properties cannot be expected in one oil, and the purpose for which the softeners are used will determine the choice.

While in general the use of a softener is simply to produce a good touch, yet different kinds of yarn will require slightly different treatment, and the softener be modified accordingly.

Low quality yarns require the item of cost to be especially considered, and so the soda softener will be employed. For loosely twisted yarns and short staple yarns, the body-giving property of the soda soap softener recommends it. All fine yarns and those from unusually harsh dyeing processes will require the potash softener.

The proportions of the different constituents of a softener, i. e., the water, soap and oil, may be defined as follows: Sufficient water to dissolve the soap, and as much oil as this concentrated soap solution will thoroughly emulsify. No general rule governing the proportion of water, soap and oil is followed, hence an investigation of the application and effect of softeners of varying proportions on warps become necessary.

To investigate the use and results of the various softeners in the market, softeners were made up in the laboratory of the New England section of the Society of Chemical Industry in accordance with the rule stated above, that the water should be sufficient to dissolve the soap, and no more oil should be present than could be held thoroughly emulsified, and the results from using such softeners were compared with those obtained by the use of commercial softeners. It was soon evident that there was too much oil in the majority of the commercial softeners, as it separated in the softening bath, and frequently caused oil stains and streaked warps.

As indicated by their composition, there are two methods of preparing cotton softeners:

1. By adding a warm solution of caustic alkali to an excess of oil above that required to make a neutral soap, and then thoroughly boiling and agitating.

2. By making a soap, dissolving it in hot water, and adding the proper amount of oil, and then boiling and stirring the mixture.

With the first method it is evident that the combined fatty acid and free oil must be the same. By the second method it is possible to have one variety of soap, i. e., a palm oil soap and a different oil, i. e., olive oil; such combinations are frequently desirable both from an economical and from a practical point of view. A further advantage of the second method is that the free oil in the softener is not boiled for the long period required by the first method.

When a sodo soap is used because of its hardness, the free oil must be of low melting point, and unquestionably a good grade of olive oil is the most desirable for such purpose. With a potash soap, because it is soft, a harder fat or tallow may be used for the free oil. The use of these fats is also preferable as they have less tendency to turn rancid.

The proportions determined by experiment as best suited for cotton softeners were those in which the soap, calculated on a dry basis, is three parts to one part of free oil, or, including the water, seven parts of water, three parts of soap and one part of oil.

An analysis of a soda softener made approximately on this formula gives: Water, 64.2 per cent; dry soap, 26.8 per cent; oil, 9 per cent. A potash softener, which gave excellent results, gave on analysis: Water, 68.4 per cent; soap, 23.7 per cent; oil, 7.9 per cent.

As stated before, with a soda softener, olive oil is preferable for the free oil, but as a source for the combined fatty acids in the soap, there is a wider range for choice; at present, maize oil is a very cheap and valuable soap oil, and may even be used as a free oil with fairly good results. Bleached palm oil, however, is the usually fatty base of the soap in soda softeners, the body it gives being the reason for its selection, as thereby more water can be used in the softener.

From a user's standpoint, it is not

superior to maize oil or tallow, and is somewhat more expensive. Cottonseed oil is, on the whole, less desirable in its soap-making properties than maize oil, and at the present time is higher in price. For a potash softener, the maize oil is suitable, and is as cheap as the fatty base for the soap, if a fairly hard tallow is used for the free oil.

Red oil is also very suitable as a base with either potash or soda, but because of its odor it should not be used for the free oil. Lard oil, while suitable for soap base, is higher in price, and offers no advantages over red oil. Beef and in a less degree mutton tallow are good and cheap soap bases, and beef tallow is the material par excellence for the free oil of a potash softener.

One cotton softener, which is somewhat largely used, is sulpho-ricinoleic acid or turkey-red oil. This is, undoubtedly, a good softener, and has, in a marked degree, the general property of all good cotton softeners of brightening colors. It is, however, more expensive than the cotton softeners described, and has no compensating advantages.

It may be summarized in conclusion that a good cotton softener is composed of approximately seven parts of water, three parts of soap, and one part of oil, and that, where a soda soap is used, it should be olive or maize oil, and when a potash soap is used, it should be tallow or lard.—*Posselt's Textile Journal.*

The Thymos Chemical Company, with Eugene Thymer at its head, has filed notice of authorization to operate a plant at 50 Spring Street, Newark, N. J., for the production of chemicals and allied specialties.

SULPHUR BLUE

Chester A. Jayne, vice-president and general manager of Ralph L. Fuller & Co., Inc., 2 Rector Street, New York, with offices in New York, Cleveland, Philadelphia, London and Genoa, has been elected president of the Union Dye & Chemical Corporation, of Kingsport, Tenn., for whom the Fuller company are the sole selling agents. In addition to the other products of the Union Dye & Chemical Corporation, it is now specializing in sulphur blue four (Conc.), one of the best sulphur blues that has yet been put upon the market. That color is of special interest to the textile trade, and the concern is now ready to make rate deliveries on contract as well as having the color available for spot delivery. The sale of this product is through the sole selling agents, and the corporation Ralph L. Fuller & Co., Inc., main office 2 Rector Street, New York City.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

L. S.—Question—We are passing chlorine into boiling toluene in the presence of light, and would like to know just what chemical reactions are taking place.

Answer—Various chlorine products are formed, the principal products being those in which the chlorine is substituted in the side chain.

D. T. A.—Question—Kindly forward me complete working formula for the preparation of 2-Amino-Anthraquinone.

Answer—By this time you will have received the working formula in full detail, and I would suggest that you proceed at once with the installation of the autoclave and other apparatus, so I may be in position to carry out the test.

C. A. G.—Question—What issue of your paper contained an article on "The Thunders of Silence"?

Answer—This editorial was printed in our October 28 issue. A copy is being forwarded you by mail.

E. A. S.—Question—We are sending you a photographic color screen, and would like to know the dyes used. Kindly forward the results through the mail, as it involves a patent matter.

Answer—We have received the screen in question and will send results of our analysis by mail, as requested.

"THEM'S HARSH WORDS!"

Under the heading "Small Interests Squeezed," the New York *Sun* recently printed a special despatch from Washington to the effect that the smaller dye manufacturing concerns of this country are going to experience exceedingly "hard sledding" now that the war is over. The despatch follows:

"Washington, Jan. 6.—Of the eighty-one dyestuff manufacturers now doing business it is believed that competition, which is constantly increasing, will cause all but a few to discontinue. It is not believed that more than six will be able to keep going.

"The reasons are that the smaller manufacturers are turning out only a limited line of dyes while the overhead expenses are comparatively greater than those of larger concerns. There is said to be a probability, however, of several of the smaller establishments combining to form a common selling agency and thereby reducing their expenses."

The reasons given for the difficulties are sound, and the proposed remedy will likely be adopted in a number of cases, but all the same we believe with the ill-fated lover of "Molly Brannigan," that such a state of affairs is "crool 'ard" on the little fellows, and that the correspondent may possibly have been led to overestimate the gravity of the situation a bit. What do our readers think? We should be glad to receive opinions as to the merits of this view. Personally, we think the point not at all well taken.

ENGLISH LIKE NEW COLOR CARD

That the British are well disposed toward the American dye trade is well shown in a recent article anent the new standard color-card issued by the Textile Color-card Association, by David Patterson, F.C.S. The writer said:

"The excellent color-pattern card issued by the Textile Color-card Association of New York is a courageous and praiseworthy product of the confusion and turmoil of war. The Association consists of a large and representative combine of over 200 of the best known textile and color firms in America, and has been promoted for the sole object of uniting all their influence and experience to form a universal standard color card embracing the most popular shades in use throughout the trade. This has been a long-desired project on both sides of the Atlantic, and it says much for the initiative and business go of our American cousins that they have so courageously tackled this big problem at the present time. To standardize the multifarious shades in the dyeing trade is a big task, requiring not only the technical skill, but patience and knowledge in selection, tact in consultation with others and at the same time harmony of organization which are sometimes difficult to combine and bring to successful accomplishment.

"In standardizing and naming colors it is very essential to have as many experts and representative opinions as possible to form a basis on which to work. The color-committee has been careful to do this, and selected at first some 108 color names of the best known shades used in commerce, and asked twenty-five well-known firms to furnish a swatch or cutting of what they considered the best typical example of each of those 108 shades named. Twenty-three firms complied with the request and sent in their ideal shades as representative of the trade names given. After all these had been received, that is twenty-three shades of say a typical 'Old Rose,' and twenty-three shades of 'Nile Green' or 'Ecru,' 'Cream,' 'White,' &c., these 108 groups of twenty-three shades each were then placed before a further select committee, whose duty it was to choose from each group the ideal or best representative shade for the name given. After this was accomplished, the next step was to engage two skilled dyeing firms to match to perfection on skeins of silk ribbon the recognized standard shade as finally selected. Then from these dyeings were prepared the beautiful shades, so tastefully mounted, in the color standard now before us."

NOTES OF THE TRADE

With a capital stock of $1,050,000, the G. Siegle Corporation of America has been incorporated under the laws of New York. The newly organized corporation will engage in the manufacture of colors, dyes and chemicals. Headquarters of the concern will be located in New York City.

To manufacture and deal in dyestuffs, chemicals, etc., the Newport Dyestuffs Corporation has been incorporated under the laws of Maine with a capital of $25,000. The head office will be in Portland, that State.

The John P. Marston Company has been incorporated under the laws of Massachusetts to manufacture, import and export dyes, chemicals and dyestuffs. The capital of the company is $20,000, and headquarters will be located in Boston.

Announcement has been made by the Republic Laboratories, Inc., of New York City, that the capital of this organization has been increased from $112,500 to 1,000 shares of preferred stock, with a par value of $100 each, and 2,500 shares of common stock.

To provide for increased capacity, the Aetna Explosives Company, Inc., will build a new addition to its plant at Fayville, Ill. Plans for the structure are being prepared, but the estimated cost of the addition has not as yet been made public.

A new organization, to be known as the Maywood Chemical Company, to be located at Maywood, N. J., is the result of the recent merger of the Standard Essence Company, the Thorium Chemical Company and the Schaefer Alkaloid Company, all of that State, and each capitalized at $100,000. The merger was recently consummated upon securing the approval of the Public Utilities Commission, Trenton.

The United States Tariff Commission has sent out the following notation on its "Census of Dyes and Coal-Tar Chemicals, 1917":

"Through a misunderstanding, establishment No. 79 reported that it manufactured dyes. Eliminate No. 79 for all products except color lakes, page 34."

AMERICAN DYESTUFF REPORTER

Vol. IV, No. 5
Feb. 3, 1919

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AMERICAN
DYESTUFF REPORTER

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Vol. 4 New York, February 3, 1919 No. 5

AN EXAMPLE OF EFFECTIVENESS

Calculated Thoroughness and Absence of Hysteria Characterize English Licensing Scheme — American Color Users Should Familiarize Themselves with Measure

IN view of the fact that the details of the British scheme for protecting the dye industry of the United Kingdom has but recently been laid befor the American public, a few words further anent the activities along these lines in that country at the present time might not come amiss. There has been much matter in the press of late in which varying opinions on this subject have been expressed, and it is but natural, for the eyes of the dye fraternity, whether in the French, Japanese, Swedish, Swiss or United States chapters, are now almost universally focussed upon England.

For, as a matter of fact, England may be said to have stolen a march on the rest of the civilized world in this matter of protecting her dye industry for the future against too much foreign competition, either from Germany or from respectable nations. Perhaps they have not exactly "stolen" a march in the sense of achieving a *coup*, for the danger to any of the Allies from German competition in the dye field is not an absolutely immediate one, but at any rate she has taken the initiative and pointed the way to safety with her licensing measures.

Hence, interest in what the British dye trade may be doing is strong. It is more or less likely that, patriotic though they may be, the consumers of dyestuffs in the United States will never attain quite such an utter abhorrence and loathing of German dyes as exists among English consumers. Even in the case of the latter, and of all the English, including those actually engaged in fighting, this feeling did not begin to manifest itself in its present virulent form until the war was within eight months of its end. It was pointed out not so long ago, by a lecturer who had had an opportunity to study conditions in England, that the British never worked up a really satisfactory "hate" against the Germans until last March.

The reason given reveals a typical phase of English character. When the war broke out, the English saw their duty and went methodically to work to recruit and train an army. So many men; so many months—"aren't they stepping forward fast enough?—very well, draft 'em; the exact number per month necessary to hold the western front has been computed; production must be maintained" . . . etc. They fought the Germans across No Man's Land and likewise with the bayonet at close quarters in much the same way . . . "the bloody beggars don't *like* the bloomin' bayonet . . . h'all right, lengthen the period for bayonet h'instruction!"

Then suddenly it dawned upon them that the Germans were utterly devoid of what we call the "sporting spirit." Reports began to drift in that they were little better than h'animals—that their conception of what fighting ought to be was sordid and vulgar; that they could not impale an adversary without a beastly display of disgusting emotion; that they were altogether swinish and cowardly in all their dealings with prisoners and the helpless; and, in short, that they were not "game." This was really too much! From that time on their contempt and hatred of the Germans became something to regard with interest, and it manifested itself plainly in the increased viciousness with which they attacked what they looked upon as a sniveling, skulking foe instead of a gallant and brave one.

This picture may sound a trifle overdrawn; and perhaps it is as to details, but most certainly not as to the fundamental essence of the English hatred of the Germans and all things German. Your Englishman may be able to forgive, in time, a footpad who holds him up and takes away his money if the latter makes a point of leaving him enough change to go home in the tram; at least, his feelings toward him will not be the same as though the latter had displayed a petty meanness about an extra sixpence. In the latter case he will be vindictive against the fellow for the rest of his days. And in the latter case also he will be angrier about it a week later, when he has had a chance to think it over, than he was at the time of the hold-up. This is also characteristic; for, being less volatile than either French, Italian or American, he makes up for it by being harder to pacify when once thoroughly aroused.

France has reasons of her own for hating Germany; so has Italy, and so has Belgium, and so has America; but we will venture upon the prediction that a good, healthy anti-German sentiment will endure in England longer than in any of these. Whether or not the reason seems absurd (and England has plenty of other reasons as well), nevertheless it is there, and it is now dwelt upon at such length because it is bound to be a factor so important in the German dye operations of the future that its significance can scarcely be estimated.

As a part of the scheme described in last week's issue of the REPORTER, Parliament has taken steps to provide funds through the British Board of Trade to be applied to the development of the English industry. The essentials of the administration of the scheme, particularly that part dealing with the creation of a trades and licensing committee, were described in our last issue from the memorandum submitted by the Board of Trade. Another portion of this document which should be of interest contains the following:

"It is no part of the object of the scheme to assist financially the formation or development of any dye-making business in the interest of the business as such; but it is recognized that the development of the manufacture of dyes on a scale more than sufficient to meet the Britsh requirements, and enabling a substantial export trade to be carried on, is most desirable if the industry is to be firmly and permanently established and the cost of production brought down to a point which will make competition with the very large-scale industry of Germany commercially possible.

"Neither financial assistance nor special priority for materials and labor will be available for the extension of the manufacture of dyes already in sufficient supply for Empire markets, nor for any general development not important as contributing directly to the main purpose. If the industry is established sufficiently to meet British demands at reasonable prices, the object of the Government will be attained and a sound foundation laid for such further developments by the unaided efforts of the manufacturers as may appear commercially expedient and practicable.

"The policy so far as regards priority is determined primarily by the present serious shortage of labor and materials; so long as that continues, such resources as are available must be utilized in the first instance for securing the supplies of dyestuffs necessary for the British industry, and only thereafter and in so far as there may be a surplus of labor and materials can development on a larger scale and determined by ordinary commercial considerations be allowed."

Consumers of dyestuffs in this country will do well to seriously reflect upon the rational viewpoint and the sanity displayed in these statements. There is no mad scramble to extremes and no "foaming at the mouth"—which would lead to suspicion and hostility—over there, but simply a sober, calculating and businesslike determination to eliminate German dyes from English markets, without, please notice, injuring the consumer in the least while the process is going on.

We cannot do better than to realize the fact that even with an intense anti-German sentiment to aid which will exceed our own in time, the English are nevertheless taking every possible precaution in the shape of legal provisions to see that there is no let-down in future. The dye manufacturers of this country are united in their desire to obtain in the United States legislation substantially along the lines of the English program, and we believe that those of the consumers who have bothered to inform themselves as to Great Britain's measures are in entire agreement that the thing may be done without injury to the trades depending upon the use of colors for their conduct. But it is not enough merely to agree; there must be an open expression of sentiment in favor of adopting such measures, from the consumers themselves, in order to give our Government assurance that an enactment of this kind is wanted by all, and to this end the REPORTER would emphatically urge all consumers to write to their legislators signifying their approval of the plan to establish a licensing commission.

It must be understood that every month counts from now on; that the manufacturers cannot display all the eagerness without creating the suspicion among our Solons that there is "a "nigger in the woodpile" somewhere, and that it is the consumers' duty to themselves to study closely the question, to make their decision, and then to render this decision audible to the "powers that be" without delay.

AMERICAN ANILINE PRODUCTS PLANT DESTROYED

The plant of the American Aniline Products, Inc., at Nyack, N. Y., was totally wrecked by fire and explosion on January 31st. One man was killed and seventeen injured and the property loss is estimated as exceeding $1,000,000. The concern is, fortunately, completely covered by insurance.

At the time of going to press few details are available. It is known that fire broke out in one of the building which was followed by two severe explosions, but the cause of the fire has not been determined

Announcement has been made by the New England Hosiery Company that the capital stock of this concern has been increased from $10,000 to $50,000 to provide for expansion.

THE GERMANS AND THEIR COLOR INDUSTRY

By A. ATWOOD

A new phase of the discussion as to German thefts and developments of English chemists' tinctorial discoveries, is here brought out in a recent article in the *Dyer and Calico Printer,* in which, this time, the English themselves are somewhat taken to task by the writer. Whether these views are justified or not may be left to our readers, for whom is herewith reproduced the article in question:

There are two ideas rather widely prevalent, which, according to the emphasis put on them, may do either good or harm. The writer intended to deal briefly with them in the article on "The Multiplicity of Dyes" (DYER, July 15th, p. 86, *et seq.*). A rather fuller discussion of them in a separate article has, however, seemed desirable.

In the article referred to, we tried to give some idea of the immensity of the work generalized under the term "research." We pointed out that this is the field where the definition of genius *par excellence* is "an infinite capacity for taking pains." In this sort of genius the Germans have hitherto been an easy first. We must frankly acknowledge this to ourselves. When a nation has been on the brink of disaster—as we have—and has been shook up—as we have—an essential thing is to look facts in the face, however unpleasant the process may be.

SUCCESS AND FAILURE

In the sphere of tinctorial chemistry, on its manufacturing side, we made a very poor show. Our enemies made a tremendous success of it. Of this there can be no doubt; and the two ideas we referred to are: first, that to us should be all the credit for inventing aniline dyes, and, secondly, the success which the Germans have had, has been robbed from us. These ideas are only partially true, and may easily lead to very wrong impressions; they may lead to two very different effects. If they give us confidence in ourselves and provide an incentive to our efforts, well and good. But if they shall lead to an undue self-complacency, which in turn shall lead to a slackening of effort, then too much emphasis has been placed on them, and their effect will be harmful.

The two ideas are sometimes expressed as a comparison between English and German inventive genius. It has been said, and widely believed, that England has produced the great geniuses, and the momentous discoveries (in no sphere more than in tinctorial chemistry), and Germany has simply developed other folks' ideas—after stealing them. Now, even if this were a statement of pure fact, would it still be greatly to our credit? We may doubt it.

The "brilliant genius" that cannot develop its own ideas, has a streak of foolishness in it that greatly discounts the brilliance. The "inferior" mind that can yet appreciate a brilliant discovery, and develop it to extents undreamed of, has surely a touch of genius in it. It certainly gets superior financial results.

A SIMILE

If a vein of gold outcrops somewhere, someone is sure to stumble across it sometime. But discovering the outcrop, and following it into the bowels of the earth, are two different things. If the first discoverer has not the sense to turn his discovery to account, he surely has no room to crow over the man who comes along, develops a gold mine, and makes a fortune. At any rate if he does, the other, with comforting thoughts of the millions he is making, can listen with equanimity.

There are many definitions of genius. There is the brilliant kind for instance, and there is also a plodding kind, and it seems to us that the one which achieves most conquests over nature, and incidentally brings in most wealth is that which has for its groundwork an infinite capacity for taking pains. A flash of genius may receive more notice from the historian than the lifework of a plodder, and quite legitimately, too, for it may be epoch-making and marking, but the epoch itself, and not the mark what counts in actuality. The discovery of Perkin's Mauve was epoch-making and marking, and it was English, but the epoch itself has so far been German. The genius and his brilliant discovery were ours. To him be every credit. To the race, the nation, be the discredit for letting his discovery be, as far as we have been concerned, a flash in the pan. The gold mine was opened out by the Germans, patiently, laboriously, persistently. Their achievement, intellectually speaking, has been greater than ours. There has been more genius in it. Let us admit it, and by way of reforming our manners, let us "rob" them of their methods. If, after the style of giving

(*Continued on page* 12.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

GRAFT INVESTIGATION BY THE FEDERAL TRADE COMMISSION

We are advised that the Federal Trade Commission, through one of its investigators, has been giving very serious attention to the matter of commercial bribery being practised by various dyestuff manufacturers. Whereas it is not yet possible for us to give publicity to the findings of the commission, we believe that this will be possible in the comparatively near future and that revelations of a surprising nature will be forthcoming.

It is most gratifying to find that our Federal authorities are taking up this matter in a serious frame of mind. There is no question but that the practice of graft is one of the most objectionable conditions now existing in the industry, and we are convinced that the only way to eradicate it is by giving unsparing publicity to every offense which can be authenticated and by the vigorous prosecution of every offender.

The REPORTER will extend its aid and will assist to the best of its ability in substantiating every instance of graft which is called to its attention and in giving unsparing publicity to the offenders, if the offense can be proved. We wish to warn those who are guilty, both the donors and recipients of favors, that they are taking very long chances if they continue in these practices. There will be no disposition on the part either of the reputable elements of the industry or of our national government to pass lightly over any proven offenses.

BRITISH LICENSING SYSTEM

The British system of licensing imports has already been put into effect against American products, as evidenced by an announcement from Washington that hereafter imports into the British Empire of tools and machinery of all sorts for working metal and wood, stoves and ranges, soap, watches, household appliances, photographic apparatus, sewing machines, linen goods, lawn mowers, aluminumware, hats, clothing not waterproofed, bathtubs, perfumery and toilet preparations would be denied entry into Great Britain except where specially licensed.

In making this announcement the War Trade Board sympathizes with the British restrictions, declaring that they are necessary to restore Great Britain's economic status to a state of equilibrium.

It would seem to us that if Britain is already enforcing her licensing provision, and it is admitted by those who are in control of our own trade that this is a reasonable action, there should be no objection raised to our adopting a similar policy as regards dyestuffs or, for that matter, any other foreign manufactured products which will tend seriously to interfere with the development of American industries.

We have already repeatedly pointed out in these columns the benefits to be enjoyed by all elements of the dyestuff industry under a licensing system similar to that now operated in Great Britain. We sincerely trust that those consumers who have hesitated to take a favorable stand in this matter will give the suggestion further careful thought to the end that the industry may present a unified front when the time comes to request Congress for the necessary legislation.

A voluntary petition in bankruptcy has been filed by the Aniline Products Company, which was organized in Cleveland, Ohio, soon after war was declared, and which now lists its assets at $10,000 and its liabilities at $24,000.

THE GERMANS AND THEIR COLOR INDUSTRY

(*Continued from page* 9.)

marks in school examinations, we were to give ten for the discovery of Mauve, we ought to allow one hundred for the synthesis of indigo by Professor Baeyer.

What we insist on is that the very empty boast that the Germans have had their success made possible only by what they have "robbed" us of is not entirely true in itself, and if it were so, reflects little discredit on them and does not do us any good. What we require to do is to imitate their thoroughness, their patience and persistence. If they have any good ideas, let us "rob" them as quickly as possible. When we get to the first place among the nations, scientifically speaking, and are incidentally rolling in affluence, we can receive with equanimity, and correctly evaluate, any complaints from people who claim to have had their brains robbed. Luckily for us that metaphor of the gold mine, is not exactly a parallel at all points. Whenever we set our minds to it, we can reclaim our portion and collect our dividends. It is consoling to know that we have made a start, and a good start, but it will take us a few more years to make good and safe.

PATENT LAWS

Let us examine this statement about being robbed of our ideas a little more closely. It is customary to say that the Germans made unfair and dishonest use of what, for lack of a better name, we have to refer to as their patent laws. The point may be fully admitted. The Germans have no idea of fair play either in war or business. They no doubt took all advantages supplied by the disgraceful state of our patent laws. But after all is the excuse sufficient to meet the case? Other trades would have a similar state of affairs to contend with.

Take for instance that of machinery for spinning cotton and worsted. We led the way in this. Have we ever lost the lead? Yet it is much easier to copy a machine than to annex a chemical synthesis. A loom or a spinning frame is there without any description. It can be taken to bits and measured up with ease. If the purchaser does not happen to know how to use it, the maker shows him with pleasure. But a keg of powder, or a cask of paste, does not yield up its secret so easily. Yet the textile machinists, though up against the same robbers, never let themselves be robbed of first place. To-day, our cotton and worsted spinning mills and weaving sheds are full of English machinery. But our dyehouses, before the war, had their color stores stocked as to 90 per cent with Germany dyes.

When all is said and done, the "robber" is, by the nature of the case, second in the field. The man or firm that is first in the field, has a start in all things. Whilst others are finding out the initial secret he is, or should be, going on with improvements. He is also getting the financial cream. The "robbers" when they enter the market with their stolen goods must take lower prices. Our color trade got the financial cream—and pined away. The Germans got, in those early years, the skimmed milk—and waxed fat.

Our early captains in the industry do not seem to have had the far-seeing vision. Perhaps, also though on this point information seems to be too meagre to judge accurately, the financial success of the early colors was so great, that the pioneers' ambition was satisfied, and thus our very success became our stumbling block. A little more vision, and a little more of the infinite capacity, may have made all the difference. The point to realize now is, that it is these two qualities which win through. If at last this realization has come to us, there will be no more failure, however bad other nations' patent laws are. All the other qualities are ours already.

The ethics of the question we have touched upon form a knotty little problem.

INTERNATIONALITY OF SCIENCE

Pure science is international and universal. It is almost impossible for it to be otherwise. Could we, for instance, by any possibility have confined to the English the theory enunciated in Darwin's "Origin of Species"? In any case is it not better that the whole of mankind should take part in the work of progress, and participate in its benefits? Pasteur, for instance, labors in France, and does great and noble work. Lister, in England, carries Pasteur's ideas a stage further. Has there ever been a suggestion that Lister "robbed" either Pasteur or France? Of course not. The life's work of the two men enriched not only England and France but all other countries.

When we come to the application of science to technical matters, then it is felt that inventors ought to have some benefit from their discoveries. But even so, the framing of patent rights betrays an unconscious admission that inventions are in their nature a contribution to the common stock. A state gives protection for a term of years only. When the period is up, the world, if it wishes, can step in and take possession. Taking a large and long view, the monopoly granted to a patentee is only a small modicum. Yet every patent taken out is an admission that this modicum of monopoly granted by the State, is considered better than the precarious monopoly attained by secret working, and in this connection the State's guarantee is not a thing of perfection. Far from it.

SECRETS CANNOT BE KEPT

If the world badly wants a technical secret it will get it—acting on the principle that what man has accomplished man can accomplish. For instance, the synthesis of ammonia is known to have been successfully accomplished by Haber, in Germany, or, to put it more definitely, a known synthesis has been made into a commercial success. Can anyone doubt that we and other nations shall achieve the same success sooner or later? Yet, if we do not know that the process has been actually worked on a large scale, we might not have set going any research on it. But if a German can do it an Englishman can, and our research is going forward with certain success in view.

The manufacturer of oxalic acid from sawdust, by digesting with a mixture of sodium and potassium hydrates, supplied a case where we were the original inventors and endeavored to keep it secret. An injudicious though vague remark by a professor set the Germans on the track, and they soon ran the new process to earth.

Patents or no patents, technical knowledge spreads, and it is good that it is so.

With regard to one special subject, the complaint against Germany is that that country's patent laws were used to rob our inventors of their ideas and due rewards. We must remark that, allowing for this argument as much as its most perfervid protagonists would or could wish, it still remains that our own Government let decades pass without taking the simplest steps to help our own inventors to get their rights; so that if the German Government was criminally careful of its inventors, ours was criminally careless.

We at any rate can now see that such dishonest work of patent law is an unsocial, an unfriendly act against the comity of the nations. Invention and improvement of technical process can now be said to be really of universal concern.

If the coming League of Nations cannot arrange for consolidation and unification of patent law for all nations, it ought to get as near an approximation as possible. Except that every nation could, without objection, insist on any patent it granted being worked in its own territory, there otherwise ought to be little distinction between native and alien inventors in regard to the privileges granted in the patent.

We are all the heirs and potential possessors of all patents taken out in all nations up to, say, 1890 (practically up to 1900).

Our inheritance, truly, is great, but if the principles we have just enunciated had been practised all the previous century it would have been greater still.

Take dyes and the other products of coal tar. In this one line alone our inheritance is great and it includes practically all the results of German chemical research. Of course, we wish that it had been our own compatriots who had made the discoveries. Still, for one instance, the possession of the "secret" and the plant for making artificial indigo is of more solid value than the *kudos* of having discovered it. Note also that it is ours *forever*.

IF WE HAD FAIR PLAY

Only (again giving full weight to the dishonest German law argument) if we had had fair play instead of foul play, and if this had resulted in our having at least a large proportion of the coal-tar products factories well established in England, then the competition between ourselves and the Germans would no doubt have carried discovery further than it has been carried. In other words, both ourselves and the Germans would have been further on the road of progress—another proof that honesty is the best policy. A proof also that co-operation warmed up with a spice of competition is better than enmity, open or concealed.

The fundamental principles of patent laws should proceed from recognition of the fact that inventors have been, and are, and will be, the greatest benefactors of mankind in material matters. They are to be encouraged by a protection and a grant of monopoly from the State which shall have a commercial, monetary value sufficient to bring inventors forward and to spur them to greater efforts. But as regards time the monopoly is to be short, so that after a relatively few years the benefit of the inventor's results is to be open to everybody. The problem, therefore, is to give the maximum benefit in a minimum period. The more the benefit the greater the inducement to invent. The shorter the period the less the clog on progress, for the sooner will others come in and explore the tract that the inventor has begun to explore.

We are afraid that most patent laws fall short of the ideal we put forward. No State that we know of gives that encouragement to its native inventors that good policy suggests. And as for alien inventors, it seems to be thought that the policy of a State is to favor them as little as possible, and in fact to fleece them. Whereas, as we have pointed out, they should be encouraged universally. We look forward to the time when this matter, like so many others, will be dealt with better than ever before by the coming League of Nations.

The Dye Products & Chemical Co. has recently acquired a new plot of ground on Vanderpool Street adjoining its present factory site. This acquisition will enable the company to increase its facilities extensively, which they contemplate doing in the near future.

ERIE FAST RED FD

An important new color announced by the National Aniline & Chemical Company in January is Erie Fast Red FD, a product identically the same chemically but slightly bluer than the one formerly manufactured at Buffalo known as Niagara Fast Red FD, and imported before the war as Diamine Fast Red F, Benzo Fast Red FC and Oxamine Fast Red F.

This red is applied in the usual way for direct colors, with the addition of common or Glauber salt. The shades obtained with the Glauber salt and the addition of 2 to 3 per cent of soda are clearer and brighter than when dyed with common salt. It exhausts evenly and well, forming a fast red tint that stands up well to light. It is fast to alkalies and fast to acetic acid, but not to mineral acids, and withstands rubbing and hot pressing.

This red dyes cotton and wool to about the same shade and strength. For wool it may be used with 10 to 20 per cent Glauber salt and 1 to 3 per cent acetic acid. When dyed on wool and afterchromed, Erie Fast Red FD possesses excellent fastness to light and good fastness to washing, stoving, milling and acids.

This ability to meet many tests, and also the fact that it may be used for mixed fabrics, should make this new dye of value for many uses.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

W. E. K.—Question—Kindly advise us who manufactures in America Direct Reds fast to acids, similar to Diamine Fast Red F, Chloramine Red F, etc.

Answer—So far as we know the only product manufactured in this country similar to Diamine Fast Red F is a new color very recently brought out by the National Aniline & Chemical Company, known as Erie Fast Red FD. The Sterling Color Company, 72 Front Street, New York, also manufactures a product, known as Direct Fast Red F, which, we understand, is equally fast to acid and will match the shade of Diamine Fast Red F, and which does not require afterchroming.

R. B. C.—Question—Where can we obtain a practical formula for the manufacture of "Aspirin," and what is its chemical name?

Answer—"Aspirin" chemically is the Mono-aceto-acetic acid ester of salicylic acid. No reliable formula for its preparation has been published. We can, however, supply it, together with list of required apparatus, for a small fee to cover cost for time required to collect the data.

J. A. K.—Question—What are the chemical properties of Methyl-Aniline?

Answer—It is a colorless liquid, boiling at 192 deg. Cent. with Sp. Gr. of 0.976 at 15 deg. Cent., and by acylation produces Exalgine.

C. E. B.—Question—Can you tell us what Bixin is?

Answer—Bixin is the essential coloring matter of Annatto. That purified from acetone, and crystallized from ethyl acetate, is the most reliable.

FROM "DIE" STUFFS TO "DYE" STUFFS

American enterprise and ability to co-operate are disclosed in a very favorable light in the report by Dr. V. L. King, of the Artificial Dyes and Intermediates Section of the War Industries Board, on the dye and intermediate situation in this country. The dye industry here before the war was practically limited to the assembling of dyes from intermediates manufactured in Germany. When the German supply was cut off, the American color makers were thrown upon their own resources with the result that "probably $100,000,000 of capital have been invested in this business since the beginning of the war, and to-day nearly all of the intermediates necessary for the dyes are being made on a commercial scale. The dye maker's work is not yet complete, but he has created approximately two hundred dyes equal in every respect in shade, strength and working quality to the pre-war types, and he has made them from American raw materials and American intermediates in quantity and variety sufficient to keep the textile mills in operation."

Both in amount of capital invested and in its contribution of chemical and technical experience the American dye industry owes much of its progress to the activity of the Du Pont Company in this field. In turning the vast output of its tar stills from "die" stuffs into "dye" stuffs, the Du Pont Company is operating on a scale and with an effectiveness quite up to its immense resources in men and money and to its century old habit of achievement.

NATIONAL'S EXHIBIT AT MARSHALL FIELD'S

The exhibit of American dyestuffs held by the National Aniline & Chemical Company has met with wide success since first shown in this city last fall in connection first with the National Textile Show, and then at the Chemical Show. It has just completed a two weeks' stay in the auditorium of the Woodward & Lothrop store at Washington, D. C. Located at the nation's capital, it attracted more than usual attention. Special invitations were extended to members of Congress and other officials, and daily lectures were given in connection with the exhibit.

This educational work has been so successful in informing the general public as to what is meant by fast American dyes that it has been welcomed by large department stores in many cities, and arrangements have been made to continue the exhibit in other cities during the spring months. From Washington the exhibit will be taken to the store of Marshall Field & Co. in Chicago, where it will be on view during the week beginning February 10.

The following stores have already

been visited: B. Altman & Co., New York, N. Y.; Jordan Marsh & Co., Boston, Mass.; C. T. Sherer Company, Worcester, Mass.; Albert Steiger & Co., Springfield, Mass.; L. Bamberger & Co., Newark, N. J.; Hunter Tuppen Company, Syracuse, N. Y., and the Joseph Horne Company, Pittsburgh, Pa.

NOTES OF THE TRADE

A. Klipstein & Co. have announced to the trade that Lieut. A. Klipstein, Jr., Infantry, United States Army, and lately attached to the General Staff, has again taken up his former connections with this firm at its New York office, 644 Greenwich Street, that city, having just received his discharge from the army after a service of eighteen months. And the REPORTER feels that it is but echoing the sentiments of many when it welcomes Lieutenant Klipstein back to the ranks of business and congratulates his associates upon his safe return.

With a loss estimated to be in the neighborhood of $200,000, the Cosmic Aniline Dye Works, located in the Bronx, New York City, was recently destroyed by a disastrous fire, which completely gutted the building. Several of the employees, overcome by ammonia fumes, were saved by their fellow workers. The concern employed a total of sixty-eight men and women, most of whom were housed in a building said to be over fifty years old and saturated with chemicals.

Announcement has been made of the recent opening of the eleventh branch office to be established by the Marden, Orth & Hastings Corporation, of 136 Liberty Street, New York City. The new office is located in the Syndicate Trust Building, St. Louis, Mo., and is in charge of Mr. Lewis, well known to those who have dealt with the Chicago office of this company. The company's full line of chemicals, oils, dyestuffs, intermediates and tanning materials will be supplied through this office.

The Oceanic Chemical Company has been incorporated under the laws of New York with a capital of $5,000. Headquarters will be located at 41 Park Row, New York City, and the incorporators are J. M. Schapiro, I. Perlstein and C. Goldman.

Proceedings in bankruptcy have been begun by the Stanley Aniline Chemical Company, of Lock Haven, Pa., which up to the signing of the armistice had been engaged in the manufacture of phenol and was operated as a Government munitions plant. Recently the plant was closed down and the fifty employees were discharged.

To replace the laboratory and office building recently destroyed by fire, which resulted in an estimated damage of $10,000, the General Chemical Company is preparing for the erection of a new two-story plant at the company's works at Laurel Hill; Long Island. Plans for the new structure, which will cost about $35,000, have already been filed.

With a capital of $65,000, the Richards Chemical Works has been incorporated under the laws of New Jersey and will do business in Jersey City, that State The incorporators are Richard Van Oesen, Jersey City; George F. Ellison, Brooklyn, N. Y., and William E. Borden, Jersey City.

John Burstein, Benjamin Burstein and Samuel C. Burstein are named as incorporators of the Warren Chemical Company, whose capital is $100,000, and whose headquarters will be in Newark, N. J.

AMERICAN
DYESTUFF REPORTER

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—Last to Be Forgotten When Those Who Disrupted Harmony Among Allies Are Recalled.

The American Dyestuff Industry Will Survive

An Opinion Expressed by Herman A. Metz to Thomas A. Edison.

AMERICAN
DYESTUFF REPORTER

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THE LAST SHALL BE HEARST

His Obvious Attempts to Breed Distrust of Our Allies Will Be Remembered Even After Slacker and Profiteer Have Been Forgotten—Present Activities Threaten Harmony of Dye Consumers.

WHEN the late Major John Purroy Mitchell, at the opening of his last campaign, uttered his famous philippic against "Hearst, Hylan and the Hohenzollerns," he might have added "and the greatest of these is Hearst!"

For, so far as being dangerous to the happiness and welfare of this nation is concerned, the greatest of those three Hearst unquestionably was—and is. The notorious Prussian family alluded to scarcely belongs in the same category, for everyone knew well enough what they were trying to do and the means of preventing them were so obvious as to leave little room for difference of opinion. The name of Hylan, of course, is at once removed from the trio because it was included for purely political reasons and for the happy alliterative effect, and because the present Mayor of New York City is not intellectually massive enough to become a national danger to anything, even though he desired such a distinction. But the potentialities for mischief-making which lurk behind the name of William Randolph Hearst were—and are—a constant menace to the smooth adjustment of delicate questions of national policy.

On the ground that politics and personalities outside its own field should never be permitted to find their way into a purely trade paper, we have more than once been obliged to resist the temptation to lay violent editorial hands upon some of the propaganda of the Great Meddler. To have done so would upon more than one occasion have been a labor of love and, moreover, the doing of it had become the fashion among many. That it is now being done in these columns arises not from a fatuous belief that a new Jack the Giant Killer has appeared in the land, but simply because of the fact that recent trouble-breeding activities of the Hearst papers having taken a turn where they could easily create dissension and doubt among American dye consumers upon the deciding of an important issue, it at last becomes our privilege, as an organ devoted to the industry, to comment thereon, and to agree or differ, as we see fit.

But before getting down to cases, let us call attention to one salient fact. There are those who profess to see in

William Randolph Hearst a Benedict Arnold and a Judas Iscariot combined, who would traitorously betray his country without compunction, or a cold-blooded snake whose glistening coils are hidden from sight within the folds of a self-adjusted American flag. Others have proclaimed him an out-and-out German sympathizer who openly gambled upon the success of Von Hindenberg's armies, while a third group have looked upon him as a publisher who little recked what damage he might do provided only he could sell plenty of papers. The reader may take his choice, for the question is not at all one of aims, but of deeds. Thus, though Hearst's motives may have been as saintly as Samuel or sinful as Sodom, it makes no difference. The effects are there. But what *does* count is that the man has, rightfully or not, been repeatedly accused of unpatriotic and disloyal actions. This should be remembered while perusing what follows.

Further, those who regularly read two or more newspapers, including one of Hearst's, will have plainly discerned that Hearst has times without number deliberately tried to stir up a feeling against Great Britain. During the months following the outbreak of the World War this was particularly apparent. After the entrance of the United States made us an ally of Great Britain, popular outcry caused the soft pedal to be applied more or less to this sort of thing. Now that the armistice has been signed and the war is practically over, he is at it again. Debates over knotty points between two generals signify (in the Hearst papers) that the respective powers which they represent are "at odds." And in critical times like these, when so much depends on the existence of perfect harmony, such obvious attempts to create discord are, to say the least, in the very worst possible taste.

The recently completed British embargo on imports, which will become effective on March 1, has been seized upon by the Hearst papers as a pretext for another attack upon England. Of course, nothing but actual happenings, accurately reported, are printed. You may be sure of that. But it is perfectly simple for any newspaper, by carefully selecting the proper man to interview, by the adroit use of bold-face type to bring out certain phrases meant to be taken with the whole, and by artfully constructed headlines, to so "color" the news of the day as to convey almost any impression desired. And we would advise anyone wishing a half-hour of genuine entertainment not to accept our word for it, but to purchase to-morrow a copy of Mr. Hearst's *American,* together with copies of any other two newspapers, and to carefully compare the various articles relating to this subject. The obviousness of the Hearst intent is downright amusing, and after such a test the reader, whether previously convinced or not, will thenceforward become his own news censor.

Within the past month headlines of which the following is a fair sample have been appearing in the *American:*

"BRITAIN PUTS UP BARS
AGAINST AMERICAN-
MADE GOODS."

We are also frightened half out of our wits by reason of an impending "TRADE WAR," and learn of a "MOVE TO SEIZE MARKETS OF WORLD." In other headings we find the "U. S. ASKED TO STOP EMPIRE'S RAW MATERIAL," for there is "QUICK ACTION NEEDED TO PROTECT UNITED STATES AGAINST FOREIGN PLAN OF AGGRESSION." Arthur Brisbane has it that "The British Embargo and the American Kind Would 'Make a Cat Laugh,' Especially an English Cat." A comparatively inoffensive article from the pen of the ubiquitous George Bernard Shaw is captioned "BRITISH COMMAND OF SEAS SO DANGEROUS U. S. CANNOT PERMIT IT." One of the prize exhibits is an article by Edward Ewing Pratt, Managing Director of the Overseas Products Corporation, and formerly Chief of the U. S. Bureau of Foreign and Domestic Commerce. This bears the heading: "EMBARGO REGARDED AS A CHALLENGE TO OUR MANUFACTURERS," but one has to read no further than the second paragraph before encountering the following:

> "It would therefore be futile for us to try to find in the import restrictions that Great Britain will impose on March 1 any personal commercial rebuke that she is trying to aim at any nation in particular."

Not a line of Mr. Ewing's article, however, appears in bold-face type, and this is in sharp contrast to another at the top of the same page, where, spread clear across eight columns one many hardly hope to avoid seeing a "box" containing a picture of Governor John J. Cornwell, of West Virginia, with the monster heading: "'RETALIATORY MEASURES NECESSARY,' SAYS GOVERNOR CORNWELL," and below, "BRITISH EMBARGO INTENDED TO WIPE OUT TRADE BALANCE AGAINST HER."

One might easily pursue this line indefinitely, but there is no need. The simple experiment suggested above should be enough to convince anyone that Hearst is going out of his way to attack our good friend and ally, Great Britain. And if nobody paid any attention to him, his power to create ill-feeling would be negligible—nay, more, the attempts would cease, for a dwindling circulation would soon have its effect. But the trouble is that so many *are* deluded by reason of the fact that they seldom take the trouble to hear anything but Hearst's side of any question. Therefore, if we have prompted even one of these to investigate and to tell of his findings to others, the purpose of the present article will have been achieved.

As a matter of fact, Great Britain is using her sovereign rights to protect her trade after the war and is making no discrimination against any single nation. We propose to do the same thing, and there is no necessity for getting into a stew about it. But it is important to the dye and other industries right now to maintain as cordial relation with those of our allies engaging in similar lines as possible, and anything calculated to needlessly upset these relations is mischievous and utterly to be condemned.

That is just what our friend of "the little flags which help to sell papers" is trying his best to do, and hence, when it comes to a capacity for breeding discord among those who should be united heart and soul, of "Hearst, Hylan and the Hohenzollerns,"—these three; the greatest of these is Hearst. Long after the damage wrought by the war has been repaired and many of the sacrifices entailed have been forgotten, the minds of Americans will hold the memory of those who sought to impede by various means the actions of the United States both during the progress of the war and during the reconstruction period following. One by one these, too, will cease to be remembered with quite such vivid distinctness; thé "little group of wilful men," the slacker; his pal, the conscientious objector, and the war profiteer will fade from view, blotted out by the brilliant record of accomplishments. But with the stragglers of those to be remembered, among the very last shall be—Hearst.

NEW NATURAL RED AND INDIGO DYES

The chief markets for Jamaica Fustic before the war, according to an article in the *Bulletin of the Imperial Institute* recently abstracted by "M. F." in the *Journal of the Society of Dyers and Colourists,* were France and the United States, but direct exports to the United Kingdom have increased greatly during the war. The search for new sources of supply and new natural dyestuffs has led to the following among other materials being examined and reported on:

Braziletto wood is a term used to cover several red dyewoods of the West Indies and of Central and South America. Braziletto from the Bahamas is *Caesalpinia bahamensis,* from Brazil *C. echinata,* from the Antilles *C. brasiliensis,* while a variety from Peru and Colombia is *C. bicolor,* and the wood known as Lima or Peach wood from

Central America and surrounding regions is from the tree *Haematoxylon Brasiletto*. Brazil wood was the term originally applied to *Caesalpinia Sappan,* now known as Sappan wood, and was transferred to the wood of South American trees on the discovery of the New World, the country of Brazil being so called because of the abundance of red dyewoods there. Brazil wood was once largely used in this country but has been largely replaced by the West African Camwood, *Paphia nitida,* and the allied Barwood of West Africa, *Pterocarpus soyauxii,* and Red Sanders or Santal wood of India, *Pterocarpus santalinus.*

Three samples of Braziletto wood from the Bahamas were examined and found to dye similarly to commercial Brazil wood, except as regards the shade on alum-mordanted wool, which was pink. These Braziletto woods are not of much interest to dyers now, but afford a substitute for Peach wood. They are quite distinct from Brazilada wood from the Bahamas, which resembles Logwood in dyeing properties. Logwood from the Bahamas compares favorably with the best Jamaica wood and would find a market here.

Indigo from wild plants in Nyassaland in two samples showed 20.4 per cent and 36.1 per cent. indigotin, and from Nigeria 27.5 per cent Indigotin and 1.5 per cent Indirubin. "Indian Madder" from South Africa, *Rubia cordifolia* roots, proved similar to the same roots from Kashmir, and possessed stronger tinctorial properties than commercial ground Madder root.

A lichen, *Neuropogon melaxanthum,* which grows abundantly in the Falklands and is synonymous with certain *Usnea,* possesses direct dyeing properties on wool yielding orange-brown shades.

E. F. Doheny, Jr., has resigned his position with the River Spinning Company, Woonsocket, to become a salesman for the Newbert Chemical Company, Boston.

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

THE PASSAIC AND PATERSON STRIKES

The cessation of hostilities has left this country a fertile field for the cultivation of labor difficulties. The feeling of restraint, never very potent at any time, is now gone; the spirit of unrest is, if anything, greater than before. It is not surprising, therefore, that strikes grow apace.

The demands of the Paterson silk workers for a 47-hour week instead of a 50-hour one would seem to be far less unreasonable than some, however. Through the intervention of the War Industries Board, the whole affair may be adjusted by the time these words find their way into print. It must be remembered, however that the propensity to strike seems to be a more chronic part of the mental equipment of the silk workers than some others, by reason of the fact that because of the nature of their work their hours must be longer in order to produce a a given wage than the average.

The Passaic woolen workers are less unified in their organization, and their various demands for 44, 42 and 40-hour weeks were, at this writing, meeting with little response on the part of the mill owners, who declare their intention to remain closed until the men come back. Some, as in the case of the 2,000 employees of the Passaic Spinning Company, have declared no strike at all. There are at present a total of 28,000 workers idle.

The only immediate effect on the dye trade has been a temporary lull in the demand owing to uncertainty among the mill owners as to the probable duration of these conditions. We believe, however, that there is little cause for alarm, and that the trouble is nothing more than one of those sporadic outbreaks which seem bound to occur in either war or peace. There is little likelihood that it will spread to the South, or that if it does, it will result in anything more than localized discontent of relatively short duration.

DID NOT "TURN THE OTHER CHEEK"

In a recent address before the Women's Forum, at the Hotel Biltmore, New York City, William J. Matheson, President of the National Aniline & Chemical Company, said:

"A short time before the war, the Benzol Products Company started in the manufacture of aniline oil. The Germans promptly undersold us without regard to cost; and when one of our directors spoke to one of the German directors about the matter, he (the German) said, 'I see a cloud no larger than a man's hand on the horizon, and we propose to push it down.'

"We answered that by building a plant larger than had ever been built before, a unit larger than any before erected; and have since manufactured and delivered a quantity three times in excess of the consumption of the United States before the war, a large part of this being used for explosives in connection with the war.

"We had to provide for the use of this surplus aniline when the war would end, and we now have an indigo works with a capacity larger, I believe, than anything that exists anywhere, which is already turning out a limited quantity, and will be turning out in a few weeks over 15,000 pounds a day."

The Moorhead Knitting Company, Harrisburg, Pa., which recently increased its capital from $300,000 to $500,000, has authorized a further increase to $1,000,000. The present capitalization of the concern is $434,100.

AMERICAN DYESTUFF INDUSTRY WILL SURVIVE

Herman A. Metz Says American Manufacturers Can Compete on Staple Colors Even Under Previous Conditions—Thomas A. Edison Skeptical

A BRIEF note from Thomas A. Edison to Herman A. Metz, in which Mr. Edison expressed his doubts as to the permanence of the American dyestuff manufacturing industry, and Mr. Metz's reply thereto, in which he takes issue with the inventor—both of which letters are reproduced herewith—make interesting reading and should afford no inconsiderable comfort to those supporters of the American industry who have been wondering just where they would "get off" in the next year or two. In reading these documents, it must be borne in mind that Mr. Edison speaks more or less as an outsider, while Mr. Metz knows from his own practical experience exactly what he is talking about.

We are not so sure that we agree with Mr. Metz in everything that he says—certainly we should prefer not to. He says, for instance, that in his opinion the color business will "eventually be in the hands of, say, a half dozen manufacturers." We are loath to believe this. We recognize, without question, that a large percentage of the so-called manufacturers who have managed to make money under the artificial wartime conditions with little or nothing in the way of manufacturing facilities or technical skill must go by the board in the not far distant future—in fact, many of them have gone already. But we are inclined to the belief that those concerns which have developed really creditable products, particularly those which have specialized along certain lines, can, by combining their sales efforts or by merchandising their products through dealers or other manufacturers who maintain large sales organizations, continue to do business at a living profit. There is no doubt that such a condition would be best for the industry as a whole, as the concentration of the entire control of any business in a few hands always tends to increase dissatisfaction among the consuming elements in the industry involved.

In his prediction, however, that the colors of bulk consumption—such as the sulphur, azo and many of the basic and direct colors—will continue to be made in America for domestic consumption and that imports of these colors will never again be resumed in any volume we heartily agree with Mr. Metz. As for the rarer colors—those

(*Continued on page* 12.)

which have not as yet been satisfactorily produced in this country—Mr. Metz declares that only time will demonstrate whether or not we can successfully compete with the imported products. It is our hope that the establishment of a licensing board similar to that adopted by the British will make possible the development of a successful American business in these colors.

The letters referred to, together with one written by Mr. Metz to a large dry goods store in Hartford, Conn., all of which appeared in the *American Silk Journal* for February, follow:

December 8, 1918.

DEAR METZ:

If paranitraniline is selling now at $1.80 per lb., and was selling by the Germans before the war at 16 cents, according to your own statements, what is to become of the elegant chemical works of Herman A. Metz, no matter what the protection will be—say, Congress put the tariff at 500 per cent. I am using this as an illustration. I have a vision that in a few years the owners of chemical works here will be around with a hand-organ and a monkey, trying to make a living.

(Signed) EDISON.

Mr. Metz replied as follows:

December 10, 1918.

Thomas A. Edison, Esq.,
Orange, N. J.

MY DEAR MR. EDISON:

I was very glad to see your little note to-day. It certainly opens up a line of thought.

What I told you regarding paranitraniline before the war was absolutely true. I looked up the record to-day and I find that we sold imported paranitraniline at the time the war abroad started at 16 cents a pound, which included 10 per cent duty and our profits here. I never took up the manufacture of paranitraniline. I knew in the first place that the processes that were used were not the most economical and could not compete with the processes used by the Griesheim people in Europe, who were the largest manufacturers and who used the so-called "chlorine process."

I did, however, feel that regardless of what the future might be, the textile interests and and other manufacturers in the United States could never again be caught in the same position in which they were after the war abroad started, owing to the non-receipt of colors and chemicals. For this purpose I increased materially the products made by the Consolidated Color & Chemical Company, of Newark, and became interested in the Central Dyestuff & Chemical Company, of Newark. I took up in these plants the manufacture of a line of colors that would be consumed in quantities, that offered the possibility of amortizing the plant in the shortest space of time, and even suggested a possible profit under the increased rate of duty adopted by Congress in case conditions again reached anywhere near normal and we were confronted with European colors.

That many of the products now being made cannot compete even with 500 per cent duty, I am convinced. On other products like betanaphthol, for instance, which is one of the fundamentals, and of which I used to import more than a million pounds a year and sold at 8½ cents which included 10 per cent duty and profit, and which was made and sold here after the war started by American manufacturers at $1.25, and still brings 60 and 65 cents, even for export to England, Japan, Switzerland and other countries, I am satisfied that with naphthaline back to where it was before the war, that is to 2½ cents a pound, and acids at somewhere near the old prices, I can compete and continue to manufacture, not only for my own use as a basis for making scarlet, orange and other colors, but can sell it in competition with the foreign article. This is due, of course, to the fact that my plant has been amortized, I have no interest to pay on bonds or preferred stock, and there are some other plants in the same position. Eventually, in my opinion, the American color business will be in the hands of say half a dozen manufacturers who will supply the bulk colors and do it at a living profit, and there will be no further importations of colors of that sort, such as the sulphur colors, the azo colors, a number of the basic colors and some of the direct colors such as benzopurpurine, direct blue, direct black, etc.

As to the "fast colors" like alizarine and, those derived from anthracene, while there is no doubt we can make them here and that they and all other colors will be just as good, color for color, as any made abroad, whether at the prices they can be produced here our mills can afford to use them, is an open question. Even before the Underwood Bill went into effect, and while alizarine was on the free list, we imported comparatively very little alizarine for dyeing yarn in this country. The fast Turkey red yarns dyed with alizarine were imported from abroad. Whether this condition will confront us again on the fancy yarns dyed with fast colors remains to be seen. If so, it won't help the dye business but will injure the textile interests.

All in all, I am not a pessimist on the future of the American color industry. We are making enough sulphur colors here now to supply the whole world, but, of course, I do not believe we will do much exporting, and as we cannot use all that is manufactured, some one has got to stop. On the other hand, we must bear in mind that besides the German industry, the English, Swiss, French and Japanese also have made considerable progress in ridding themselves of German domination so far as dyestuffs are concerned, and they probably, like ourselves, will be able to supply much more than the requirements of their own countries of the essential colors. To what extent therefore they will be in a position to export and thus be competitors of ours, only the future can tell.

With kindest regards,
Yours very truly,
(Signed) H. A. METZ.

Office of Herman A. Metz
122 Hudson Street, New York
December 20, 1918.
Messrs. Blank & Co., Hartford, Conn.

GENTLEMEN:

Your favor of December 17 is at hand. In answer, I beg to say that such colors that are being made here by reliable manufacturers, and I mean by that such as have properly equipped plants and competent chemists, are equal in every way to similar dyestuffs made in Germany or anywhere else.

Dyes are definite chemical compounds and when a specific dye is made according to its chemical constituents, and the proper result is obtained, it must be equal to the same product made elsewhere under the same conditions. This is certainly true now with the colors we are turning out. On the other hand it must be borne in mind that most of the colors we are making now are those that have been made for a great many years, and that in the last ten years a number of new products capable of being dyed in light shades and in level effects that were fast not only to sunlight but to washing, bleaching, and practically every other test, have been placed upon the market. These colors have not yet been produced here and personally I doubt if they will be, at least if they will be at a price which will enable the manufacturers to use them. It is entirely an economic question. When dyestuffs cost more to dye per pound than the material on which they are used, it stands to reason that the cost of dyeing is excessive and cheaper colors must be used. Many colors are fast to washing and not to light. Others are fast to light and not to washing. In order, therefore, to produce certain shades combinations or mixes of colors are required and all of them should be of the same general nature, that is, if they are to stand washing, all the colors used should be fast to washing, or if they are to stand light, that is, exposure to the sun and weather, all of them should be fast to the exposure. Unfortunately we are not up to the present time producing a sufficient range of colors to make such combinations possible on all fibres. We are undoubtedly producing products that in solid colors or heavy shades for cotton, wool or silk, are satisfactory to all tests, but when fancy shades or lighter shades are attempted, the fact that there are certain links missing, makes it impossible to produce the results that could be produced if we had the full line of colors that was formerly available. Whether we will get them or not, remains to be seen. If we cannot make them here on a competing basis they will have to be imported, and some system will have to be devised to enable textile manufacturers to obtain such colors that are essential for specific purposes and still not interfere with the industry as now established.

I certainly want to see the American manufacturers of textiles become independent of German or any other foreign domination so far as dyestuffs are concerned. We have produced, and are producing, a very creditable line of dyestuffs even though we cannot as yet furnish the same results as far as various kinds of fastness are concerned in every conceivable shade.

I am sending you under separate cover a sample card showing the basic colors that my plants here are making. It is only a matter of reference but, color for color, they are equal in shade and fastness and chemically to any one of the corresponding colors ever imported from abroad.

Yours very truly,
(Signed) H. A. Metz.

Preparations are being made by the Monsanto Chemical Works, St. Louis, Mo., to open the building at 12 Platt Street, New York City, which this concern recently acquired at a reported price of $35,000, as a permanent office in that city. The present New York office is located at 1 Platt Street, and the transfer is being planned to take place on May 1. The new building is expected to offer better facilities in the way of storage for wares and the expansion of the company's business.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

W. R.—Question—Lately we have been having trouble with sulphur fumes in our plant, and suspect that this is due to the coal we are using. Will your department undertake to analyze our coal in order to confirm our suspicions?

Answer—Yes; if you will forward us samples of the well-quarted shipments we will be pleased to make you complete analyses of same.

J. W. H.—Question—We are in the leather business and would be pleased if you could give us the names of dyes for producing red and yellow shades.

Answer—Bismarck Brown will answer the purpose for producing the shades you desire.

P. K. G.—Question—We would like some information regarding the synthesis of Azo dyes derived from Benzidine-sulphone.

Answer—A series of dyes of the benzidine type has been prepared by coupling hydroxy- and amino- compounds with the tetrazo-derivative of benzidine - sulphone - disulphonic acid. The dyes are then isolated in the form of sodium salts; they act as direct dyes towards cotton, and the resulting shades are unaffected by washing.

W. I. M.—Question—Please inform us as to the composition of the mordant called "gallo-oleate of ammonia."

Answer—The mordant is prepared as follows: Mix 55 parts of triolein, 1.5 of alcohol, 1 of gallic acid, and 13 of 22 per cent ammonia solution, and stir until saponification is complete.

RECOVERING INDIGO

In what are commonly termed spent lime and copperas indigo vats there still remains more or less indigo in solution, as well as a certain amount precipitated at the bottom of the vat, and it goes without saying that the value of this indigo is sufficient to warrant the recovering of it. That observation is more true nowadays that it was some years ago, indeed over 20 years ago it was the custom in well-managed establishments to reclaim as much as possible of the indigo from the vats and the dyeing operations.

The method usually adopted to save

the indigo remaining in solution was to let the liquor stand for a while and then pump it, or otherwise transfer it, to another vat not quite exhausted, instead of introducing so much fresh water.

The treatment of the sediment at the bottom of the vats may be effected in different ways.

One method consists in subjecting the precipitate to the action of an excess of hydrochloric acid, which to some extent dissolves the lime, iron and copper, and leaves the indigo insoluble. In practice this method is not really so simple, since a large quantity of acid is required to neutralize the lime, and it does not dissolve the sulphate of lime present or the particles of fibre which collect at the bottom of the vessel. As a consequence a certain amount of indigo will still remain attached to this foreign matter and be lost.

Another method is the cold water process, in which a series of large tubs are placed on a lower level than that of the vats, but connected with them. Each tub should be arranged so as to be somewhat lower than the preceding one. The sediment in the tubs is caused to be well mixed with cold water, vigorously stirred, and then allowed to settle.

As soon as the insoluble portion of the sediment is precipitated to the bottom the liquor is run into the tub on the next level, and there the operation is repeated with the sediment which still remains in the tubs, and is continued as long as any indigo can be washed from the sediment.

The indigo in the water in the lower tubs quickly oxidizes and becomes precipitated to the bottom, and by arranging a series of these receptacles, placed each one lower than the preceding one, the operation can be carried on until nothing but clear water runs from the last one. The process is simple, requires little attention, and no expense for material; yet the amount of indigo recovered is less than that obtained by the first method.

A third method, which is very efficient, especially in the circumstances where space is not available for the series of tubs prescribed in the last-mentioned method of working, consists in boiling the residue in caustic soda and yellow arsenic. The reducing liquor is made up of 1 kilo. of yellow arsenic, 4 litres of caustic soda, and 2 of water. The arsenic is previously ground very fine, and the three ingredients are boiled in an iron vessel, effecting a thorough mixing. Usually about 30 gallons are prepared. Three or four litres of the solution are then put in the tub containing the indigo sediment; steam is introduced, and the liquor is allowed to settle. The liquor is then run into the other receptacles, and from them pumped into an elevated reservoir in the open air. The troughs which conduct this liquor to the reservoir are made as wide and shallow as possible, in order to expose the liquor thoroughly to the air, and thus effect a rapid oxidation of the indigo.

In this way the indigo, after reaching the reservoir, becomes precipitated quickly. The clear warm water in which the indigo has already been deposited is preferred to clear water for the preparation of the new reducing solutions for lime, zinc, or bisulphite vats. Where there is very little residue the best plan is to force air into the liquor. This will cause the indigo in suspension to oxidize and to be rapidly precipitated. The liquor is then allowed to stand, and the precipitate is afterwards treated with a small quantity of hydrochloric acid, which dissolves any oxide of zinc that may be present, and leaves the pure indigo ready to be used for another vat.—*Posselt's Textile Journal.*

NOTES OF THE TRADE

To manufacture chemicals, the Liberty Chemical Works has been incorporated under the laws of Illinois with a capital of $10,000. Headquarters will be in Chicago, and the incorporators consist of J. D. Patterson and Helen Cunningham, that city.

The Radium Knitting Mills have been incorporated under the laws of New Jersey with a capital of $80,000. Headquarters of the firm will be located at 63 Irving Street, Newark, and the incorporators are Reinhold Havez, Oscar Havez and Ida Havez.

With the co-operation of the Textile Color Card Association of the United States, the embryonic National Association of Sweater and Knitted Textile Manufacturers has appointed representatives of the local organizations to act as a color standardization committee. This committee is considering proper shades of white, Copenhagen gold, light blue, tan, black, salmon, purple, peacock, maroon, kelly, oxford, green heather, nile, khaki, reseda, royal, rose, corn, pink, cardinal, turquoise, buff, American beauty, colonial blue, myrtle, navy, dark oxford, lavender, pearl gray, olive and orange as the standard colors of the industry.

Hugh McKinnon, late of the Merrimac Woolen Company, Draycut, Mass., has resigned his post with this firm to become associated with the newly incorporated Dorr Woolen Company, successors to Fairbanks & Dorr, of Guild, N. H., in the capacity of overseer of dyeing.

H. Wilkinson, head of the department of dyeing at the Huddersfield (England) Technical College, has recently been elected an associate of the Institute of Chemistry of Great Britain and Ireland. He was formerly a member of the faculty of the University of Leeds, where he studied under Prof. A. G. Perkin and the late Prof. J. J. Hummel.

AMERICAN DYESTUFF REPORTER

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WHAT TO CALL A SPADE

Those Who Say "Tariff" When They Mean "Licensing Commission" Should Alter Their Phraseology to Conform With New Conditions

TO "call a spade a spade" is an expression which is ever used to signify praiseworthy economy of speech and businesslike bluntness. It is a very eloquent expression, well deserving the respect accorded it in the United States, a nation of workers. The principle which it expounds, if one can believe the copy-books, should be carefully cultivated and made a habit of by every young American ambitious to grow up and be a sales shark or business hound, like papa.

But shucks! We knew a man who was a phenomenal success and who never by any chance called a spade a spade. He was entirely self-made, too, and in his youth had gone through hardships enough to have killed a regiment of Turkish soldiers. He fought his way up the ladder, one round at a time—we might almost say by a series of battles, one round at a time—from the ranks of an iron-jawed, hard-hitting aggregation of prize roughnecks where direct and forcible speech, shorn of all frills, was the only kind ever heard, and at this very moment he has enough Liberty Bonds to stuff a mattress, with plenty left over for a pair of pillows.

Well, anyway, this man invariably calls a spade a d——d shovel! Not for him such a highfalutin', fancy term as "spade" to describe an implement which he thinks of only in the manner set forth above. To him, a spade *is* nothing more or less than a d——d shovel, and so, with true and characteristic frankness, that is just what he calls it. And if he called it a spade, as the exponents of brevity recommend, it would simply be a silly affectation on his part.

The business men of America have long been calling a spade a spade when they really meant a "d——d shovel." Like certain parts of Washington's farewell address, when the causes which call into being a popular expression disappear, the expression itself lingers to confuse the minds of the succeeding generation. Circumstances alter cases, and just as the clauses in the Washingtonian *adieux* which speak of foreign relations have been pretty well outgrown by this time, so have our grandfathers' notions regarding the tariff. The war, say the savants of to-day, has changed everything, and inasmuch as for some time past both dye manufacturers and consumers have been talking about a tariff spade and thinking about a licensing shovel, it is high time the name was altered to properly express the thought.

Everyone knows well enough that the very best kind of a tariff measure which would stand a chance of passing Congressional inspection could not hope to be a serious obstacle to Germany's reorganized business offensive. We must have a tariff, naturally, just as armies must have a second and even a third line of trenches. But the purposes for which it was originally designed have simply outgrown it, together with the old-fashioned horror of improving upon a tried and true system of commercial defence, and there is no good reason for mincing matters by saying "spade" when we mean "d——d shovel."

Yet habit is a hard thing to outgrow, and we still find a number of reputable and up-to-date textile journals urging their trusting subscribers to spread and support propaganda for a "high tariff." This is right and commendable. But we object to the phraseology. Their object, and the subscribers' object—and our object—are one, this being the proper protection of the American dye industry. And no one can long think of ideal ways for the accomplishment of this without beginning to form in his mind a hazy outline of some such plan as we find crystallized in the proposed licensing scheme. We'll get the highest possible tariff anyway; Dr. Taussig and his commission will see to that. Therefore we may as well stop worrying about it, and wondering if it could be made just a leetle mite higher, mebbe—for it could not. But we can, by taking thought, add more than a single cubit to our industrial stature if we can begin to think aloud about a licensing system. But we must thing very hard and very loudly; these are noisy times and there are many other worthy thoughts clamoring for immediate attention. We must drape the term "licensing commission" in graceful festoons around and through the nouns, verbs and adjectives of our daily conversation; we must pronounce it clearly and distinctly at meetings of the trade, and we must speak freely of it in letters to the fearless and gentlemanly editor, in order that more people may get used to hearing it and seeing it in print. If the expression refuses to be articulated smoothly the first few times, practice saying it before your mirror for five minutes in the morning. It will soon slip out as easily as "discount" and "repeat order."

Carl Zeiss, of Jena, Austria, used to make some of the very best lenses obtainable anywhere. No doubt he still does, but he hasn't been able to send any to this country for some time past. Perhaps Germany has been easier of access; at any rate it is safe to assume that there are plenty of Zeiss lenses in Berlin. Let the reader, then, imagine himself for a few minutes to be a Hun. He is standing, we will suppose, in the Wilhelmstrasse. In his hand he holds a pair of Zeiss field-glasses. After sweeping the horizon for an instant, he turns them full upon America, and with German eyes, through Hun-made glasses, beholds the land of his nativity. At once his erstwhile American mind begins to function as a German's.

He sees a hive of industry, and, among other things, huge plants turning out an ever-increasing number of coal-tar dyestuffs. He snorts with delight. "America," he cries, "is a commercial capon! This Schoolmaster who presides in Washington is the prince of puerility—the 'ace' of asses! They can no more compete with the efficiency of the Fatherland than they ever could. It will be the old story just as soon as we are ready to send them our dyes." He views the country for signs of hostile measures, observes the united advocacy of a high tariff and says "It iss to laugh!" for he knows that the German color combine can gleefully leap over the highest tariff wall that ever could be erected. He knows that when the Americans first began to make dyes the seven members of the combine drew closer together, agreed to share all losses and profits equally, and undersold the impudent Yankees ruthlessly in order to crush the threatened competition at once. He knows that this same combine has just renewed this agreement for fifty years with an eye to preventing any further growth of the dye industry in America, and knowing, pities the simpletons who would think a heightened tariff sufficient to save them.

But supposing, on the other hand, he saw dye manufacturers, dealers and consumers together demanding the creation of a commission with powers to prohibit him from sending over such dyes as were already being made in America. He would know that the demand was certain to be granted, and knowing, pity himself instead of the Yankees, for he could not but realize that this was a horse of a different color. No pleading, no price-cutting and no amount of bribery could hope to get a single pound of forbidden synthetic dye into the United States, and thus his principal weapons would be taken out of his hands. The only alternative would be the creation of new colors made from "secret" formulae which the Yankees could not fathom, and there is now no hope of this since American chemists are at last thoroughly "on the job" of producing dyes. He would realize that he might as well abandon the attempt to win back his former potency in the dye trade, so far as this country is concerned, and thereby save himself and us a deal of worry and trouble.

That he at present cherishes hopes of doing so must not be doubted. German militarism is killed, but German arrogance is not, as is plainly indicated by Germany's triumphal reception of her "unbeaten armies"! This arrogance, too, will some day disappear, but for the time being it lingers.

It is only necessary, then, to see the situation through German glasses in order to understand fully just how great a dash to German hopes a loudly proclaimed and universal demand for a licensing commission would be. "Put yourself in his place" became the text of a very famous novel, and a little practice of this art in situations such as the American dye industry finds itself to-day should provide the necessary stimulus for action

The United States Tariff Commission, one of the sincerest and most potent friends of the industry in this country, has recently complained that after sending out questionnaires to 269 dye manufacturers in order to prepare next year's census of dyes and coal-tar chemicals, and after following these up with a special letter urging these manufacturers to respond with the requested data, it has received satisfactory answers from only sixty, or less than twenty-five per cent. This is not right, but the manufacturers cannot be blamed, under present conditions, for not wanting foreign dyestuff manufacturers to know what they are making or preparing to make. With a licensing commission, however, the productions of each company could become an open book, and thus another obstacle to better organization for the capture of foreign markets could be disposed of.

The eyes of Germany are upon the American dyestuff industry, and soon our own Congress will have its ear to the ground for indications of its desires. Now is the time to make a little noise, and to call that spade a "d——d shovel," if we have come to think of it as such, for the licensing commission will never be anything but a vague and beautiful dream unless we begin to talk about it and forget the traiff.

GRASSELLI ANNOUNCES ACQUISITION OF BAYER DYE INTERESTS

The Grasselli Chemical Company, New York, has sent out the following announcement to the trade:

We have acquired the dyestuff business of the Bayer Company, Inc., including its dyestuff factory at Rensselaer, N. Y., its sales organization, branch offices and warehouses, including its stocks of finished and unfinished products; also all the American patent rights in the dyestuff and allied lines of both the Bayer Company and the Synthetic Patents Company. We have also acquired the property of the Williams & Crowell Company, of Providence, R. I.

"This branch of our business will hereafter be known as the 'Dyestuff Department' of the Grasselli Chemical Company. Both the manufacturing and sales departments of our organization are at your disposal, and we solicit your co-operation in our endeavor to develop an American dyestuff industry in our mutual interests.

"We will continue to maintain dye laboratories in New York and at our sales agencies in order to be of assistance in solving our customers' problems.

"The head office of the 'Dyestuff Department' is located at 117 Hudson Street, New York City, with branches as follows: Boston, Mass., 32 India Street; Providence, R. I., 56 Pine Street; Philadelphia, Pa., 908 Chestnut Street; Chicago, Ill., 146 West Kinzie Street; Birmingham, Ala., Brown-Marx Building; Toronto, Ont., 512 Royal Bank Building; Montreal, Que., 49 Reading Street and Point St. Charles, where all communications and inquiries relating to dyestuff should be addressed."

AMERICAN DYES

Can They Compete with Foreign Products?

Many people have asked whether the American dyes are equal to the German dyes formerly imported. The idea that we were not able to make dyes as good as the Germans originated because of conditions prevailing at the beginning of the great war. As the stock of foreign dyes became exhausted the domestic dyer was forced to use any available dye, and he thereupon used, for cotton, dyes which were intended for wool, and vice versa, because the dyes which he required were not obtainable.

The making of colors is a highly specialized business. Colors are not alone made for particular shade, but for dyeing particular fabrics a certain shade, and they are further subdivided so that they dye a particular fabric for a particular purpose. We speak now of proper dyeing. Some colors will dye cotton, wool or silk equally well, but they are rare and exceptional. The vast majority of colors will dye either cotton, silk or wool properly; that is, will show a brilliant shade, will not fade in the wash and will have other necessary good qualities. Cotton colors dye cotton; silk colors dye silk; wool colors dye wool.

If cotton is dyed with logwood black, a black will be obtained which might appear as good as a black obtained by dyeing with sulphur black, which is the proper black for certain cotton; but the logwood black will not be fast to perspiration and will tend to crock, and will have many bad qualities which the sulphur black will not have. On the other hand, if you use the logwood black for silk or wool it will be fast, and will stand slight acid or alkaline reactions, and will be bright, besides adding feel or hand; whereas, if you use sulphur black for silk or wool the results would be very bad.

At this time, when the American aniline industry is assuming large proportions, and when new colors are being evolved constantly, it is important that our people should know the truth about this new American industry. It must also be remembered that aniline color manufacture is only one branch (although a very important one) of the organic chemical industry. The production of explosives, illuminating and fuel oils, natural and artificial remedies for disease, photographic materials, margarine, soap, rubber, perfume, artificial silk, and celluloid, whether inflammable or non-inflammable, is intimately connected with the principles and practice of organic chemistry, while the production of spirituous liquors, dairy produce, meat extracts and cereal foods has undergone marked improvement in consequence of applying this branch of knowledge to its control. The general public should know that organic chemistry, which is a distinct section of science, and of which aniline color manufacture is only one branch, is expanding along proper lines in America. We may confidently hope, if given a reasonable time, to be able to compete in price as well as in quality with anybody throughout the world, providing we have proper protection covering the cost of basic raw materials and labor.

The American chemist will not be found wanting, nor will the American concern engaged in this business lack the initiative and good management which have distinguished the American business man.

With a capital of $50,000, the Norristown Hosiery Mills have been incorporated under the laws of Pennsylvania and have begun operations as manufacturers of women's boot silk hosiery, 260-needle goods. The plant of the concern is at Norristown, Pa.

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

SWISS MIGRATION

We have received, from what we believe to be an eminently reliable source, information to the effect that a committee representing various Swiss dyestuff manufacturers will leave for America early in April with a view to preparing the way for a removal of considerable portions of their plants to this country. It is the idea of the Swiss manufacturers, we are told, to remove hither not only their machinery but their personnel as well.

This action is prompted, of course, by a desire to avoid duties and so compete for American business on an even footing. It may be, also, that the possibility of Congress authorizing a licensing board weighed in the decision. Whatever the reason, we see in this contemplated action the greatest possible compliment to the position of the American dyestuff industry. Imitation is surely the sincerest form of flattery, and if the Swiss manufacturers were not pretty well satisfied that our own industry had come to stay they would hardly be inclined to throw in their lot with ours.

THE SAMPLE NUISANCE

Dyestuff dealers and manufacturers waste thousands of dollars a year in samples which are never tested. One of the methods used by the average buyer of dyestuffs to get rid of a persistent salesman is to tell him to send samples of certain dyestuffs. When they arrive, they are either thrown away or saved for future use.

We do not believe that there is any disposition on the part of the users of dyestuffs to actually profit by the samples they receive. Nevertheless, there are a number of smaller dyers who do use samples thus obtained.

One of the largest print houses in this country always returns samples when they are not sufficiently interested in the dyestuff submitted to make a test. If all of the consumers in the country were to institute this method, it would result in a big saving to the dealers and manufacturers of dyestuffs and would create a much better feeling all around.

It would seem as if it were no more than courtesy to acknowledge receipt of samples, and, if they are tested, to give the results of the test. This cannot possibly do the dyer any harm, and it would be vastly to his advantage if he only would stop to think about the matter.

If, for instance, a dealer submits samples of a certain color and they fail to please, either through not being the correct shade or strength, this information would be of great value in submitting future samples, and would give the dealer or manufacturer a better opportunity to meet the requirements of the dyer.

If consumers generally would make up their minds not to ask for samples of dyestuffs which they do not require, to return those which they receive in which they are not interested, and to make a report on those which they do test, it would certainly lighten the burden of the dealer and the manufacturer and would save an unnecessary expense which, in the aggregate, runs into very large figures and which is ultimately borne by the consumer himself as part of the cost of doing business. Moreover, such a policy would be distinctly in keeping with the national campaign for the avoidance of waste, and would result in a very considerable conservation of dyestuffs.

SULPHUR DYESTUFFS FOR FAST PRINTING

By E. Greenhalgh, A.M.S.T.

A new era has dawned in the calico printing industry in which old methods, old styles and old fancies are abolished, and are superseded by up-to-date processes and ideas, no longer relying on the skill of old-fashioned, conservative producers who could imitate a shade wonderfully but could not produce anything new. Brilliant colors and shades which faded on the first day of sunshine and paled away before the contents of the washtub are now no longer sought after, but fast colorings possessing a pleasing brightness and uniqueness are gradually taking their place. The loose color will have a very limited scope in the near future, and in time will be entirely displaced by the fast color.

Such a series of fast colors, which are now coming into prominence in printing, are the sulphur dyestuffs, which contain practically every requisite shade except red, and there is not a great difference between the sulphur dyestuffs and some of the indigoid vat reds which are, after all, only glorified sulphur colors. The difference in price of many colors has led manufacturers to think that with high cost of dyestuffs there must necessarily be increased fastness, and vice versa for the low-priced goods. This is quite an erroneous idea. Many of the sulphur dyestuffs are faster in every respect than some of the indigoid vat dyestuffs.

A Drawback

One of the great drawbacks of the present-day sulphur colors is the presence of a certain amount of free sulphide in the paste, which in the printing process attacks the copper rollers severely, even partially effacing the engraving after long periods of use. The calico printer has been forced, however, to return to these colors to fill up the gaps in his range of fast colors, and has made representations to the color manufacturers as to his requirements. Consequently there have been improvements in a few sulphur colors, so that in time calico printers will use this useful class of color very largely.

At present the chief dyestuff of the class which is guaranteed to undergo the calico printing process is sulphur black paste of a strength about 50 per cent of the type used for dyeing purposes. This paste is quite finely divided, and should keep for quite a long period without any alteration in its physical state, as contrasted with the pastes used for dyeing, which often set hard in two or three months' time.

The application of these colors to textiles can be effected in various ways, and although the price of the color is often much below that of the indigoid dyestuffs, it does not necessarily follow that the method of application should be the cheapest possible, providing that a process a little more expensive gives an infinitely better result. The process, usually resorted to, for the printing of these colors is that of using glucose and caustic for the reducing agent. This process gives very fair results, but in the finished print there always appears a certain amount of flatness and, in contrast with other dyestuffs printed at the same time, the color does not stand out boldly, as it ought to do. A more expensive method is that of utilizing Formosol as the reducing agent; and though a little more trouble and cost is required, the brightness and fullness of the finished article more than compensates. The proportion of reducing agent to color is, roughly, 4 to 1 using glucose and 5 to 2 using Formosol—in fact, about the same proportions used for indigoid vat dyestuffs.

An example of the glucose alkali process is given in the following recipe, using sulphur black paste for printing:

THICKENING

	Parts
Dextrine	300
Corn starch	50
Water	150

COLOR PASTE

	Parts
Sulphur black paste	100
Glucose, 40 per cent	200
Caustic soda, 76 deg. Tw.	100
Thickening	600

Allow to stand with repeated stirring till dissolved and wholly reduced. Print dry and steam in the rapid ager for two to three minutes at 100 deg. to 101 deg. Cent. Allow to hang in moist atmosphere for at least one hour, oxidizing in ⅛ per cent bichrome and 1 per cent sulphuric acid. Soap ten minutes at the boil.

A corresponding recipe for this color, whereby brighter and fuller shades are obtained, is given by the following:

THICKENING

	Parts
Dextrine	300
Corn starch	50
Soda ash	50
Water	200

Heat to 160 deg. Fahr. and cool.

COLOR PASTE

	Parts
Sulphur black	100
Glycerine	100
Water	100
Thickening	600
Formosol 50 per cent solution	100

The color is printed, dried and aged four to five minutes at 102 deg. to 103 deg. Cent., and finally hung and oxidized as for the glucose alkali process.

SULPHUR COLORS CONTAINING FREE SULPHIDE

As it is a necessary fact that sulphur colors should be free from sulphide when required for printing, so it is imperative that this sulphide be removed before printing. To attain this end, many calico printers have made an addition of bisulphite and sulphite to the printing pastes. This has the tendency to eliminate the action of the sulphide, but its effect is only temporary, and after a short period—say, for one to two hours running of the printing machine—the sulphide begins to reassert itself.

Various methods have been suggested of desulphurizing this class of colors, and three of them are fairly inexpensive and easy to conduct in an average print works. The simplest of these processes is washing with hot water which has been slightly acidulated. This process, however, takes a long period and a large volume of liquor before the last trace of sulphide disappears. A second method consists in boiling the color with sulphite of potash and thiosulphate of potash for a short period, then acidifying with hydrochloric acid or sulphuric acid, and subsequently filtering and washing. In this country this process is not made use of owing to the high cost of sulphites, especially of potash. By this method, however, every trace of sulphide is taken out, leaving a pure color paste in a very fine form suitable for calico printing. A similar result can be obtained by using the sodium salts. The reaction which takes place with the sulphide is the formation of free sulphur, which is taken up by the sulphite forming thiosulphate. A third method of eliminating the free sulphur is that of oxidizing very carefully with either hydrogen peroxide or sodium peroxide. The color is dissolved in boiling weak caustic soda, allowed to cool somewhat, and about 5 per cent of hydrogen peroxide (10 vol.) is run slowly in, while the color solution is repeatedly stirred. After the peroxide has been added the solution is boiled, acidified, filtered and washed. The paste on the filter is very finely divided, and after being standardized can be used right away.

Previous to the outbreak of war, most of the sulphur colors, excluding blacks, contained about 2 per cent to 3 per cent free sulphide. As, however, the sulphide colors are usually printed in shades of 3 per cent to 10 per cent dyestuff for ordinary shades, the presence of this small percentage of free sulphide could not be ignored. The sulphide colors of to-day are just about the same, and in case a certain color is required it is advisable to test for free sulphur or sulphide. This must not be done by reducing the color by acid and tin crystals, as sulphide may be produced on long boiling by the decomposition of the color. The best method of testing for free sulphide is to dissolve a little of the color in some caustic soda thickening and allow it to lie for at least an hour on a clean piece of copper foil. If, after washing in boiling water, there is a black stain or cake, then the sample contains free sulphide. Care must be taken in not confusing the black stain with the oxide stain which appears very often on copper after being in presence of a reducing agent.

The sulphide colors usually sent out on the market are not pure color, but are reduced with salt to a 30 per cent or 20 per cent strength, or the doubles of these strengths. It is very rare indeed that pure "conc." color is supplied. In the case of sulphur blues, the strength is usually 30 per cent of the concentrated color, and these are usually in the form of powder.

The following recipe, using the Formosol process, gives good bright results with sulphur colors, such as blues, greens, browns, purples, and khakies containing up to 3 per cent free sulphide:

	Parts
Sulphur blue	60
Caustic soda	20
Hydrosulphite	15
Water	85
Glycerine	100
Thickening	600

Heat to 160-180 deg. Fahr. till dissolved, cool and add:

Formosol, 50 per cent	100
Sulphite of potash, 90 deg. Tw	20
	1,000

Print, age, etc., as for sulphur black for printing.

In printing these colors, which contain slight traces of sulphide, it is advisable to run as little color in the box as is possible, so the fresh stock should always be added slowly. This prevents to a certain extent the overpowering of the sulphite by the sulphide which often occurs on long running.

It will be found that most sulphur colors can be run with indigoid vat dyestuffs, and some fairly fast and pleasing results can be obtained. The fastness of these colors to washing and light is good, and exposure to sulphur dioxide, which is always present in town atmosphere, has a brightening effect. Fastness to chlorine and bleaching is very poor, and this is a great drawback to the printing of sulphur colors in pale shades for shirtings.

Certain members of Levinstein's full range of sulphur colors, the Thionol Colors, may be instanced as dyes of this class specially prepared for textile printing. Thionol Black paste for printing is a sulphur-free product adapted solely for calico printing, and Thionol Blues BR and 2BR, which contain less than 3 per cent free sulphide, can be recommended for the production of full shades of navy blue. Other members of the series are Thionol Yellow, Thionol Corinth and Thionol Green, which give very satisfactory results when applied as for Thionol Blue.

A place in the list of fast dyes should be given, by every calico printer, to the sulphur dyestuffs, and all prejudice should be dropped against them and equal chance with their very expensive rivals, the Thioindigo colors, should be accorded them.—*Dyer and Calico Printer.*

THE USE OF ACID COLORS IN THE "DRY" DYEING PROCESS

By M. Fort, M.Sc.

The winner of Prize Problem No. 26, 1916-17, of the Society of Dyers and Colourists, Bradford, England, proved to be Mr. Fort, whose paper with the above title is herewith reproduced as it appeared in the *Journal* of the Society recently:

The remarkable penetrating powers

of carbolic acid and related phenols when applied to animal fibres, and the observation that many acid dyes can be dissolved in these solvents, has led to a method of "dry" dyeing acid dyes on animal fibres.

So far as the term "dry" dyeing has any significance, it means dyeing from non-aqueous solvents but does not preclude the presence of traces of water if the amount is not such as to produce the undesirable effects of an aqueous bath. The author has satisfied himself that stable shades cannot be obtained with acid dyes on animal fibres when there is complete absence of water. The phenols in a quite "dry" state, viz., pure, re-distilled, do not readily dissolve acid dyes, but commercial phenol and cresol frequently dissolve considerable quantities. The amount of moisture required by this method is not so large as is present in the well-known expensive alcohol-benzine method of Farrell and May.

Commercial cresol b.p. 190-200 deg. Cent., free from tar, has been found the cheapest and most satisfactory phenolic solvent. In normal times cresol was about the same price as benzoline, and as its recovery is a feature of this process, its use has practical interest. Cresol alone or with 5 per cent of water added, is unsuitable for use on account of its shrinking action on animal fibres, especially wool. On the other hand, no tendency to curl was shown by immersing unstretched* cross-bred yarn, even at 100 deg. Cent., a severe test. Shrinkage is accompanied by an increase in tensile strength and elongation, as well as in thickness of the fibre. In the case of wool there is a pronounced development of scales with increased felting properties. *Example*—Yarn averaging 12 oz. strength and 1.22 in. elongation, after immersing in cresol for half an hour at 70 deg. Cent., gave the figures 19 oz. and 3.07 in.

It was found that various non-aqueous solvents can be employed as the main constituent of the bath in dyeing along with smaller quantities of a cresol solution of the dyestuff, and in this way animal fibres are protected from shrinkage, and benzene, benzoline, solvent naphtha, nitrobenzene, have been found suitable. To obtain fastness comparable with that obtained by the ordinary method of applying acid dyes, the temperature should be raised to, say, 50 deg Cent., and a preference is declared for high boiling-point naphtha (over 100 deg. Cent.) as the main constituent of the bath on that account.

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*The yarn was loose during immersion and had not been set by previous stretching whilst immersed in boiling water. Aqueous immersion caused it, when loose, to curl and twist into an almost inextricable tangle.

Nitro-benzene may be used where a higher temperature is required or for penetrating very thick dense materials. Many commercial acid dyes can be dissolved in cresol containing 2 per cent (or less) formic acid (commercial), and dyeing proceeds well in such a bath, but there is considerable shrinkage of fibre. However, the addition of 2 volumes (200 per cent) naphtha inhibits shrinkage while allowing of good dyeing still taking place. In separate treatments at 50 deg. Cent. shrinkage of wool was reduced from 14 per cent to less than 1 per cent in this way, while dyeing at 80 deg. Cent. with 5 volumes of solvent naphtha also proceeded without shrinkage of the fibre. It may be pointed out that the improved strength and elongation of wool dyed as above described favors the subsequent stretching and "getting-up" of garments after dyeing. Heavier shades are obtained when the amount of formic acid used is increased. Penetration and levelling even on goods unevenly exposed to light ("fades") is very good, and the fastness of the shades to rubbing, water, soap solutions, and agencies in general, is equal to that obtained by "wet" dyeing.

Typical dyebaths are as follows:

(1) Blue shades.—These may be dyed from a bath containing 0.1 part of Patent Blue superior, 0.5 part water, 0.5 part formic acid, 10 parts cresol. These are to be mixed in the order named, warmed, and the solution agitated with solvent naphtha, making up to 100 parts. Dyeing is performed at 50 to 80 deg. Cent. for from 5 to 30 minutes. A fine delaine garment dyed thus does not shrink or alter in length or width, and the shade is equal to that obtained in the piece by "wet" dyeing.

(2) Yellow Shades.—These are obtained by dyeing in a bath made as in (1) above, using Naphthol Yellow S as the dye. Less dye is required for most shades, and if the bath is to remain clear only half as much solvent naphtha.

(3) Red Shades.—These may be dyed similarly using Crystal Ponceau or Crystal Scarlet. The above proportions may be varied, but in all cases the actual amount of water present must be kept down to the minimum consistent with obtaining a genuine fast shade. Benzoline and nitrobenzene can be substituted for solvent naphtha, but there is a limitation imposed on the working temperature, while rather more water is also required. The most satisfactory shades are those obtained by use of solvent naphtha as the diluent.

(4) Mixed Shades dyed with the three dyes mentioned are level and quite satisfactory. In such baths silk, pure or weighted, is dyed level bright shades and is also highly scrooped and brightened. Cotton, if present, is stained without being tendered or otherwise affected.

(5) Black Shades.—The dyeing of a good black is more difficult but good results were obtained with Nerol B (Ber.). No doubt British firms can supply a substitute for this dye if desired. Dyeing was performed

in a bath containing 1 part dye, 2 parts water, 2 parts formic acid, 30 parts cresol, and this mixture was made up to 100 parts with solvent naphtha. Dyeing was carried out at 80 deg.-85 deg. Cent. for half an hour. The blue-black shade obtained was fast to rubbing and hot or cold water, and to weak soap.

The general procedure after dyeing consists of squeezing or centrifugal extraction, followed by a thorough rinse with benzoline or naphtha to which 5 per cent cresol is added. This latter ensures fastness to rubbing, and may be repeated if loose dye is present. Subsequently ordinary dry-cleaning is resorted to for complete removal of the cresol. The smell of formic acid may persist up to the drying-off but has not been noticed afterwards. It is proposed to recover the cresol and volatile solvent by fractional vacuum distillation. In actual use of standing baths, to keep them clean, it would be necessary to dry-clean all goods before dyeing.

Official Note.—A sealed communication deposited with the Society by Mr. Fort on March 21st, 1914, is in all essentials identical with the above paper and contains dyed samples illustrating his process.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

W. H. D.—Question—What class of colors are known as "vat dyestuffs?"

Answer—The vat dyestuffs at present known are all members of one of the two following classes:

(1) Anthracene class, such as the indanthrene and most of the algole series.

(2) Indigoid class, being indigo and its derivatives; the thioindigo series, the ciba series and the helindone series.

H. W. N.—Question—How can we obtain clearer whites when using tin-resists in diazo-naphthol dyeing?

Answer—If you will add glucose to the stannous chloride resist, it will greatly lessen the fixation by the tin of decomposition products form by the action of this tin salt on the diazo-compound.

E. A. W.—Under separate cover we

are sending you a sample of cotton goods dyed with sulphide black, in which please determine the sulphur before and after exposure to air.

Answer—The cotton goods was washed and dried and a portion tested for free sulphur. The balance was then exposed to a current of moist air at 70 deg. Cent. for 24 hours, after which it was again washed and the sulphur determined with the following results:

Free sulphur before exposure to air	0.675%
Free sulphur after exposure to air	0.810%

NOTES OF THE TRADE

A movement is on foot in Canada, headed by Dr. McCallum, chairman of the Advisory Research Council, to establish a central research institution at Ottawa for the benefit of the textile and other industries. An appeal is being made by Dr. McCallum to the textile people to interest themselves on the ground that progress can be greatly accelerated by properly conducted research in the dyeing, bleaching, printing and finishing branches of the industry.

The New Jersey Zinc Company has announced that the general offices of that concern have been removed to 160 Front Street, New York City, where they will occupy a seven-story office building erected for the company's exclusive use. The structure is of brick and provides considerably more space, rendered necessary by the expansion of business, than did the former offices. Modern conveniences, including luncheon and rest rooms, have been installed for employees. A demonstration room, a library and a museum are also provided, one of the features of the last-mentioned being a permanent exhibit of the company's products and their applications.

With a capital of $75,000, the Newton Combing Company has been incorporated under the laws of Massachusetts to scour, carbonize, comb and otherwise prepare wool for manufacture into yarn, wool and wool waste. Headquarters will be located at Newtonville, that State.

To manufacture and deal in alkalies and chemicals, the American Nitration Company has been incorporated under the laws of New Jersey with a capital of $50,000. Headquarters of the new concern will be in Newark.

Announcement has been made by the S. & M. Dye Works, Inc., which was recently incorporated under the laws of Pennsylvania, that this company has acquired the business of the Quaker Dye & Bleach Works, together with its plant and equipment, at 3435 Richmond Street, Philadelphia.

A new house organ has made its appearance in the field, this time from the New York offices of the American Woolen Company, which is of pleasing aspect and is known as "Amwoolco Yarns." The newcomer is published once a month, and is devoted to the interests of the company.

Dr. M. O. Forster, F.R.S., has been appointed Director of Institute of Industrial Chemistry recently established by the Salter's Company in England.

The Dye Products & Chemical Company, 200 Fifth Avenue, New York City, has acquired a plot of ground on Vanderpool Street, Newark, N. J., adjoining its plant, and is planning an extensive enlargement of its manufacturing facilities.

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AMERICAN DYESTUFF REPORTER

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"Circulated Everywhere Dyestuffs are Used"

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CONCERNING CONFIDENCE

The Inevitable Reaction Following the War Has Affected the Dye Industry Along with the Rest —There Is Need of Steadiness and Optimism

THERE is a growing uneasiness among the smaller manufacturers of synthetic dyestuffs in the United States. A vague but plainly apparent nervousness is abroad in the land; fingers are drummed upon desks, nails are bitten to the quick, and cigar-ends chewed to a shapeless pulp by day, while at night countless counterpanes are being picked at and pillows are thumped and turned over to provide cool spots for fevered brows. Frowns follow the slamming of a door, and a nameless irritation grows out of the most trifling annoyances. In short, if one may judge by appearances, the feelings of these gentry may be comprehensively put into words through the phrase of a certain elderly lady in fiction, who was wont to say when startled: "Good gracious; I'm all of a twitter!"

Very expressive, that. But the dye industry—or at least a large portion of it—is not the only one which is in a twitter of apprehension over troubles which do not exist. Its future, of course, is bound up with the future of all our other industries. General business depression affects all, no matter what lines are followed, but the dye industry, being a product of the war, is naturally more directly concerned for its chances now that the war has ceased, and may be pardoned a little more than the average amount of fretting. It is a quite normal reaction to the times, but it should not continue too long or irreparable harm will be done.

The somewhat restrained and polite alarm which at present prevails throughout the ranks of the smaller and medium-sized manufacturers arises wholly from a lack of confidence, and one of the first means by which a lack of business confidence manifests itself is in a general retrenchment all along the line in the matter of expenditures. Pennies are pinched with a nervous tightness which threatens to obliterate the *bas relief* of Mr. Lincoln's features from our copper coins, while it takes a most athletic nickel indeed to escape from the clutches of those who fear dire things. The good old sock is again fashionable as a container for the foot of the profit column, nor are its edges in any immediate danger of becoming frayed from too much contact with horny, toil-worn hands.

We may as well be perfectly frank with the reader who has followed us this far, and give him fair warning that this little gem of literature is going to concern itself almost exclusively with the subject of advertising. It is dangerous, we know, to talk about such a subject in the text pages of a publication supposedly devoted to higher, nobler things. (*Whisper*): *Accusations of self-seeking have even been known to follow in similar cases!* Yes indeed; they have. Imagine it! Why—the very idea! Well, we *are* seeking for better things, both for ourselves and for others. Heaven only knows how we have the effrontery to make so brazen a confession; but it's true, it's true, and we may as well tell the truth and shame the Devil. Our weak and pitiful excuse is that we are a trade publication catering to the dye industry; if it prospers, we prosper, and if it suffers we must writhe with the rest. Hence, when we think we see something, no matter what, which directly concerns the industry and which might improve general conditions, it is allowable to point it out. Only—the reader musn't say we didn't warn him!

There is absolutely no reason for a lack of confidence in the future of the dye or any other industry in this country. He would have been a rather rash prophet who predicted this in 1914, but we are potentially the foremost dye-producing country of the world. There is going to be plenty of room for all, and plenty of orders—and in the end, plenty of ships. We must simply hold on a little longer. No other foreign country is at present equipped with the machinery or the supply of raw materials that we possess; our chemists take second rank to none, and we have in this country salesmen who could sell gold bricks to a detective and who could most certainly sell dyes to South Americans, Japanese and Chinese against any foreign competition if they had the proper training.

The American business man, collectively, needs no education in the tenet that advertising *does* pay, and that it is one of the greatest forces in modern affairs. But there are a great many of him who cannot seem to leap the gap between that axiom and the equally trustworthy one that it pays just as well in slack times as in flush times. This type does not lack what we call "nerve," but perspective; the appearance of any outside influence which threatens to temporarily disturb the even tenor of his affairs finds him quickly huddling into a ball with sharp-pointed barbs extended in every direction against the world, like a porcupine, and one eye cocked aslant at the cat to see which way that animal is going to jump. This is a favorite trick, and while retrenchment up to a certain point is often wise, nevertheless an over-persistence in it, or the application of it to the wrong expenditures, may precipitate the very catastrophe feared.

The phases of advertising are innumerable, but to illustrate one in particular which is applicable to present conditions, we would recount an incident which actually took place, and which is analogous.

A manufacturer of a product sold both directly and through brokers to other factories where it was used in manufacturing various articles, felt the pinch of hard times and scarce orders. Although he had been an advertiser for years in the publications designed to interest his customers he began a systematic and wholesale elimination of these expenses by cutting short entirely the issue-to-issue orders and refusing to renew contracts as fast as they expired. At length the representative of a monthly magazine ventured into his den one day, armed with a contract blank. He was greeted cordially, given a cigar and invited to take a chair. But when the subject of renewing was broached, a deprecatory hand was waved in the air and the manufacturer shook his head.

"Nope," he remarked; "I'm sorry, Mr. Squirt, but business is dull and we're offa that stuff."

The petitioner's eyebrows went up. "Why," he interposed, "how's this? Hevviwate & Company have been advertising in the *Manufacturers' Only Friend* ever since our first issue. What's the matter with the book, anyway?"

"I know it," responded the other decidedly; "not a thing, not a thing. But Hevviwate & Company is now through—and believe me," he added jovially, "when we're through, we're through and through!"

The visitor surveyed the pattern of the carpet ruefully. "Well, I'd sure like to know the reason, anyway," he said.

Then it came out. The manufacturer had, it seems, been sending circulars to the trade. He had announced a new line and had gotten a satisfactory number of replies. Furthermore, he informed his listener, these replies were all directly traceable to their immediate cause, which was more than could always be said of a full-page advertisement—wasn't it? And so the firm had decided that space in publications didn't pay, and they only wished they had awakened to that fact before. "It's all right in brisk times," the manufacturer concluded, "to spread your name around, but we can get just as good results from circulars and we're going to use 'em hereafter."

The suppliant, who had listened attentively throughout the entire discourse, wore a reflective air at the end of it.

"Very well, Mr. Hevviwate," he said at length, "I see your point. And now I'd like to tell *you* something. You sent out circulars, and got replies. You bet you got replies; but *why* did you? I'll tell you. Those circulars, each and everyone, bore in large letters the name of Hevviwate & Company. When your customers saw it they said 'Hevviwate—oh, sure!' and ordered. You see, they knew all about you—even those who had never dealt with you before—and they had confidence in your status as a reliable house.

"And how," continued the caller, "did you come to be so well known, and so well trusted? Because through good times and dull, year in and year out, they had been used to seeing your name every time they opened their trade papers. Why, my good sir, supposing *I* sent out a lot of circulars to your customers announcing that I could supply them with your product. They'd see the name 'Samuel J. Squirt, Inc.,' at the bottom, and what would it mean to them? Less than nothing—they'd chuck it in the waste-basket. I could go broke sending out literature and I'll gamble every cent I've got in the bank that I wouldn't get enough orders to fill the soul of an I. W. W.! No sir, you owe your present position in the trade in great measure to the fact that you've created confidence by persistently keeping your name before your customers, and they're so used to seeing it, even though they don't always read every word your copy-man writes, that they just naturally believe in you and think of you the minute they need your goods."

It seems almost too much like a fairy-tale or a movie scenario to record that the manufacturer was convinced; but he was, and we can vouch for the facts. He continued plugging away at his advertising, and when times grew better he reaped his reward.

To marshal the arguments necessary to show that the future outlook is bright for the dye industry would take up more space than we have available and more time than the reader has to peruse them. It has all been done, many times before, and he knows it well enough anyway, if he will but conquer his temporary panicky feeling long enough to reflect on the situation. Good times are coming, but they will not come for some unless there is less narrowness of vision displayed. Now is the time to wage more vigorously than ever before a wide-spread campaign to bolster up confidence in the American dye industry. The DuPonts and the National Aniline & Chemical Company have set the lead in publicity and propaganda measures; they are not so huge that they are going to grab everything in sight, and the lesser lights may safely follow their example. Indeed, it is along this way that their ultimate salvation lies. Literature must be sent to the newspapers and magazines, the education of the department store people must be continued, liberal use should be made of foreign journals with a view to cultivating a sound and bigger export business, and the domestic trade journals must be used to keep names alive through a passing period of tightness.

We recommend no one to "go broke" trying to tell the world that their colors would make the rainbow hide away for very shame, nor would we urge anyone to jimmy the baby's bank for the wherewithal to purchase space, but we do hold that this is no time to retire into a shell until it seems safe to come out and beg furtively for a few small orders. To every man his own judgment in the matter of how deep to dig—only just so he *does* dig, be it ever so little, to help along a worthy cause.

LEVEL DYEINGS WITH THE MINERAL SALTS

Although iron buff, prussiate blue, and manganese bronze give color which cannot stand, as some of the modern vat dyes do, the full bleaching process, they are nevertheless equal to the latter in respect to fastness to light and, with the exception of the blue, to washing, and have the advantage of greater cheapness. As the colors are "impregnation colors," difficulty is frequently encountered in obtaining level colors, especially in very light shades. It is of interest, therefore, to revive the publicity that was given some seven years ago to a paper on this subject read at the time by Professor Knecht. He observed that the difficulties of producing level dyeings on cotton yarn or pieces may be entirely overcome by the employment of tannic acid as the fixing agent for the iron or manganese, and the subsequent destruction of the tannic acid on the fiber by suitable means. As is well known, cotton shows a natural affinity for tannic acid, which it will take up (under proper conditions) from aqueous solution with absolute uniformity.

Having thus ensured that the fixing agent is uniformly distributed throughout the material, it follows that the metallic salts must also become evenly fixed. Thus, for a delicate shade of iron buff, cotton yarn may be prepared, *e. g.*, by steeping overnight in a bath containing, say ½ per cent tannic acid. Next day it is wrung evenly and put into a bath of "nitrate of iron" at 1 deg. Tw., which results in the fixation of the iron as ferric tannate. The destruction of the tannic acid and the better fixation of the iron is then effected in another bath containing sodium peroxide. Naturally the buff thus obtained can be dyed prussiate blue by the usual method of steeping in an acidulated solution of yellow prussiate of potash. A simpler method of producing light shades of prussiate blue is, however, available. The yarn is first tanned as before, then rinsed in black liquor, and is now transferred to a bath containing an acidulated solution of red prussiate of potash. This latter, being a powerful oxidizing agent, destroys the tannic acid, becomes reduced itself to yellow prussiate, and this reacts with the iron on the fiber to form the prussiate blue.

If the tannic acid is not completely destroyed, the blue is apt to be dull, similar in shade to indigo. Manganese bronze may be produced on cotton by steeping the unbleached or bleached material in a solution of permanganate of potash; but although it is possible to obtain level shades by this process, tendering is liable to ensue in consequence of the formation of oxycellulose. If, however, the cotton is first prepared by steeping in tannic acid, and the material is then immersed in a solution of permanganate of potash, reduction of the permanganate rapidly ensues at the expense of the tannic acid, with consequent formation of manganese bronze. The shades thus obtained are absolutely level, and are of a more pleasing character than those obtained by the ordinary method of dyeing manganese branze. By treatment in a hot bath of dilute caustic soda they are rendered faster. The buff, blue and bronze shades obtained by the methods described, in addition to being level and clean, do not impart a harsh feel to the fiber, as is the case where the usual methods are employed.—*Textile Colorist.*

There have been rumors recently to the effect that a portion of the plant of the Barksdale Powder Company, located at Ashland, Wis., which during the war was developed into one of the largest producers of TNT in the country, may now be utilized for the manufacture of dyes. The cessation of hostilities has left much of the equipment of this plant idle, and the readiness with which high explosives plants can be converted into synthetic color factories makes this step the logical move.

The census of chemical imports, which has been in the course of preparation for the past ten months by the U. S. Bureau of Foreign and Domestic Commerce, has now been published and will shortly be ready for general distribution. Application should be made to the Bureau or to the Superintendent of Documents, Washington, D. C.

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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

A BAS WORRY!

During the progress of a recent trip which included visits to the offices and works of a number of dyestuff manufacturers of the Middle West, the publisher of the REPORTER was made aware of an increasing diversity of opinion as to the future permanency of the American dye industry. In some cases a rather lugubrious view was taken, while others were more optimistic, but practically everywhere there was uncertainty and conflicting beliefs.

That this should be so is not surprising, for any new undertaking—in which category the dyestuff industry still belongs—must be thoroughly tried out and found worthy before that decidedly "bull" tendency in its sponsors' spirits which is so necessary to its continued success, prevails. In general, the industry at the moment seems to be suffering (though not greatly) from a lack of confidence. The manufacturers have experienced a month or two of poor business, and this is scarcely to be wondered at, considering the extreme abnormality of the times. When the war ceased, consumers immediately looked for a pronounced slump in prices; hopes were entertained that dyes would be available in this country at something approaching pre-war figures—and when the expected decrease failed to materialize, orders fell off. They were again pursuing that foremost of chimeras in human affairs, "something for nothing." When they come to understand that while prices will undoubtedly descend, there will be no overnight changes, nor will dye prices ever drop so low as those which obtained before the war; buying will be accelerated.

This temporary lack of confidence, then, was to be expected; it is perfectly normal, and part and parcel of the throes of reconstruction. It is needless to be alarmed over it, or over the future of the industry in general. Matters simply need a little time for readjustment.

The REPORTER feels strongly inclined to take an optimistic view of the situation. The outlook, if one will but think back three or four years, is far brighter than we should have been justified in expecting in 1914. The strides made by the industry have been enormous, and were made under handicaps which have practically all been removed. It is entirely safe to predict that the progress of the next three years toward increasing the solidity of the industry's foundation, will be greatly in excess of that produced by the last three. Given a chance to continue its development unmolested, and to mature the plans already formed, the industry is certain to amaze the pessimists.

Straws show which way the wind blows, and one has only to observe the signs of the times in order to see clearly that there is a firm foundation for optimism, "idle chatter" though it may seem to some of the croakers and calamity howlers of to-day. As was pointed out in these columns last week, the mere fact that the hard-headed and canny Swiss have decided to cast in their lot with us shows how the future of the industry is regarded by others whose experience in dye-making dates back for generations. The letter of Herman A. Metz reproduced in the REPORTER two weeks ago is also eloquent of the mental attitude of the more knowing builders of the industry. And as for being given a chance to develop unmolested, the ingress of a G. O. P. Congress should be ample grounds for assuming that the necessary protection will be provided.

The successful passage of improved tariff legislation is as good as accomplished, and the creation of a licensing commission seems sufficiently probable to base strong hopes upon. The industry must work to bring this about, and in the meantime, away with hysteria and panic! They are the foes of successful bnsiness in any industry.

DYESTUFF USES

By Joseph Loebl

Very few cleaners and dyers realize the wide divergency of uses to which artificial dyestuffs are put. In addition to their uses on garments and textile fabrics they are used in a large number of industries for coloring and tinting a large variety of products. Among other things the artificial dyestuffs are used for coloring the following articles: Textiles of all kinds; jute, cocoanut fibre, hats, leathers, paper, straw and straw plaits, lacquer soaps, wax, paraffin, stearin, turpentine, oils, varnishes, glue, gelatine, inks, celluloid, wood, buttons, hair, bristles, foodstuffs, candies, syrups, and many others.

The various applications of the dyestuffs on woolen, cotton and silk and mixed fabrics are more or less well known and no mention of these uses will be made at this time. Rather this article will be devoted to considering the means and methods by which various other articles are dyed. This consideration is not prompted by the belief that garment dyers need this information in their business. Outside of wearing apparel and household furnishings few other articles are received at the cleaning plant for dyeing, nevertheless, it is believed that it will be of interest to dyers to know the means and methods by which dyestuffs are put to use other than in dyeing fabrics.

Jute and Cocoanut Fibre

Considerable quantities of jute are dyed in this country in the course of a year. Quite often it is in the form of burlap to be used for wall covering purposes in place of wall paper. When it is to be used for this purpose the jute is dyed either in a raw, half bleached or bleached condition according to the brightness of the shade desired. Sometimes the jute is only boiled off with soda and at other times it is bleached. The bleaching is generally done with chloride of lime, after first cleaning it in a soda bath, soured with sulphuric acid and rinsed. The dyeing is carried out either in a neutral bath or in a bath charged with from five to ten per cent of alum. When acid colors are being dyed, which, by the way, are used only when light fashionable shades are desired, the dyeing is carried out with the addition of one-half per cent of sulphuric acid, or still better with one per cent of oxalic acid.

All of the basic colors may be dyed on jute in a neutral bath, but from two to three per cent of acetic acid should be added to the bath to retard the absorption of the dye and thus secure more level dyeings. The temperature of the bath should be cold or lukewarm.

Direct colors can be used in the neutral bath. In this event the goods are entered at the boil and dyed from one-half to one hour. But a few of the acid dyestuffs can be used for dyeing jute in an acid bath.

The jute that is received by the garment dyer for dyeing generally is in the form of portieres and curtains. These, as a rule, he is required to dye either green or red, sometimes brown. Generally they are dyed with the substantive colors and then topped off with colors to improve the brightness.

Large quantities of jute are used by manufacturers of trunks and traveling bags, but on account of the very good fastness required cotton goods are preferred. The cotton is dyed either with cutch or with sulphur colors. Cutch is a natural dyestuff. The dyeing is done in combination with metallic oxides to produce shades of remarkable fastness. Bronze is obtained with copper, gray and black with iron and a very fast brown with chromium. The dyeings are shaded with tumeric, fustic or logwood. Until the introduction of the sulphur colors the only fast brown on cotton was obtained with cutch.

One peculiarity of cutch is the hard handle imparted to the goods dyed with it. This harshness is required by trunk makers, and to obtain it when dyeing with sulphur colors the goods must be treated with alum as follows: The goods are dyed in the ordinary manner with sulphur brown or sulphur cutch, turned for a few minutes in a bath charged with from three to five per cent of alum (figured on the weight of the goods), and then dried without rinsing. If the dyeings are after-treated with bichromate of potash and sulphate of copper, the alum is added directly to the bath used for the after-treating. The goods are dried without rinsing.

Leather Dyeing

Obviously it is impossible to give in an article of this length complete information regarding the dyeing of leather and leather goods. As a rule, though, most of the leather is only stained on the hair side, the flesh side being left uncolored. In this case the dye is applied to either the dry or the wet leather with a brush. Two more applications are made, the temperature of the dyestuff being about 120 degrees. If dry leather is being colored the solution is made up in the proportion of eight ounces of the dye to each ten gallons of water. If wet leather is being treated the dyestuff solution must be about twice this strength. Basic dyestuffs are used with the addition of any other ingredients to the dye bath. If necessary, a small amount of acetic acid may be used to correct the hardness of the water. The acid dyestuffs are fixed by adding one part of formic acid to two parts of the dyestuff. No sulphuric acid should be employed.

Buttons

When dyeing buttons the direct colors are used for the production of mode shades, deep reds, green, browns and black. The direct colors offer the advantage of having very good fastness to rubbing. The dyeing is carried out with direct colors by boiling for about an hour with the addition of about one and one-half ounces of soda and from one-half to one pound of Glauber's salt per ten gallons of liquor. The buttons are allowed to cool off somewhat in the bath after they are rinsed.

When the dyeing is being done with basic colors the process is carried out with from three to eight ounces of acetic acid per ten gallons of liquor, boiling until the desired shade is obtained, after which the buttons are rinsed and dried. Dyestuffs especially suitable for dyeing buttons are carried by the different concerns that handle dyestuffs.

Dyeing Straw and Straw Plaiting

The garment dyer should know how to dye straw and straw plait. Straw hats and straw plait should be soaked for several hours or overnight in boiling water before being dyed. If it is desired to dye pale shades it is necessary to bleach the straw with peroxide. Charge the bleaching bath with from two to three gallons hydrogen peroxide per ten gallons of liquor, heat from 105 to 120 deg. Fahr., neutralize with ammonia until a feeble alkaline reaction sets in, and treat the straw for several hours. When the desired degree of whiteness has been obtained remove the hats from the bleaching bath, rinse, sour off lightly with sulphuric or hydrochloric acid and a small amount of bisulphite.

For mode shades and bright tones on material that dyes easily the basic colors are used. The acid colors are used principally on material that is difficult to dye; while black is dyed with direct colors.

Basic colors are dyed by entering the wetted material while still warm into the luke-warm dye bath, and dyeing with the addition of from two to three per cent of acetic acid at a simmer for thirty minutes, or until sufficient penetration has been obtained, which may be hastened by adding an increased amount of acetic acid.

Acid and direct colors are dyed from 175 to 195 deg. Fahr. for from three to four hours, or in the case of harder plaits for from five to six hours, using concentrated baths that are charged with comparatively large quantities of dyestuff, but without any other ingredient. It is advisable to use soft water. Cotton stitches, when not colored, to the shade of the hat, may be brought up to shade with direct colors dyed cold or luke-warm.

Hats made of artificial silk plait are frequently dyed, after they have been shaped, in pale tones or the mode shades. This sensitive material does not stand a wet treatment and consequently it is dyed with colors soluble in spirit, applied with a brush. A small amount of spirit varnish or shellac is frequently added to the dyestuff solution.—*National Cleaner and Dyer.*

DYE LABORATORY CHEMISTS

By C. M. Whittaker, B.Sc.

The title of this article forms the heading of one of the paragraphs in the article by Dr. L. J. Matos, entitled "Useful Notes on Dyestuffs," which appears in the *Dyer and Calico Printer* of November 1. Having had charge of a dye laboratory since 1901, I naturally read this paragraph with interest but ended by being in complete disagreement with the statements therein. I will take some of these statements in detail.

Dr. Matos says, "Dye laboratory chemists are usually boys or young men who entertain the idea that they are chemists but whose preliminary education, combined with lack of chemical training, enables them to discharge the duties only of a dyer on a miniature scale, and consequently they become standardizers or simply shade matchers." The ideas of Dr. Matos on dyeing must be extremely elementary if he thinkks a man with a poor general education, combined with a lack of chemical training, can adequately discharge the duty of a standardizer or shade matcher. I state most emphatically, no man without a knowledge of chemistry can become an intelligent standardizer or shade matcher. Moreover, any firm that relies on such men would be inundated with complaints.

Modern dyeing, as I have shown in detail in my recently published book, is making increasing demands upon the chemical knowledge of the dyer, and therefore of the dye laboratory chemist. I would ask Dr. Matos if a man who has no chemical knowledge is capable of standardizing a vat color, the mere dyeing of which takes four hours on the laboratory scale? Again I say most emphatically "No." If the chemist so employed is not capable of observing if the sample being standardized reduces at the same rate as type; if it forms as good a vat as type; if it oxidizes as quickly as type, or if it stands soaping as well as type, such a man is no good for the standardizing laboratory of a dyestuff manufacturer.

Let us turn to the standardization of sulphur colors—one of the most difficult operations in a dye-standardizing laboratory. I maintain that no man can intelligently standardize or match sulphur colors unless he has a knowledge of the chemistry of what takes place in a sulphur color dyebath. He must be able to observe if the samples being compared dissolve similarly and if the affinity for the fiber is the same, or else he is no good in a color-maker's standardizing or matching laboratory. A man cannot observe the above points intelligently without knowing the reason why it is essential that these points should be watched. Without further elaborating these points I would state that no man is capable of satisfactorily standardizing developing colors, colors which couple with diazotized paranitraniline, colors of the chromotrope class or mordant colors without a knowledge of the chemistry which is involved in the dyeing processes used in standardizing the above classes of colors.

Dr. Matos proceeds to say, "Generally it may be regarded as a mistake for a young man with chemical ambition to lose himself in a standardizing or shade-matching laboratory of a dyestuff house." In other words, a dye laboratory is graded as a chemical blind alley. My experience of eighteen years in a laboratory enables me to state most emphatically that it is the reverse of a blind alley. I have found myself in a continual state of losing men to take up important positions in the two very branches of the trade which Dr. Matos says dye laboratory chemists are incapable of filling with success, viz.: commercial representatives and technical travelers. Men who have passed through my laboratory have taken up positions in Canada, Australia, New York, Japan, Germany, Spain, apart from Great Britain itself. Such men are capable of going into dyehouses and tackling practical difficulties with more assurance than many, because of the wide range of fabrics and color which they have handled in the dye laboratory of a color manufacturer.

No better place could be imagined for getting a wide experience of dyeing difficulties and dyeing novelties than the dye laboratory of a color manufacturer except the central laboratories of large textile dyeing combines. One of the reasons for establishing a dyehouse in a color works is to meet the difficulties found in practice in applying the particular firm's products; since these difficulties naturally repeat themselves in different dyehouses, an intelligent dye laboratory chemist soon gets to know by instinct what is the cause of the trouble, and is therefore abundantly qualified for the very work which Dr. Matos says he is not qualified to undertake.

Personally I will not engage a boy in my laboratory unless he is willing to attend the technical school and to go through the regulation courses in inorganic and organic chemistry, dyeing and coal-tar color manufacture. This is with the deliberate object of preventing the boy drifting into a blind alley; any boy who shows no aptitude for the training is told so and advised to get into some other line.

Dr. Matos later states that "It is manifestly impossible for a man who is a wool dyer to be at the same time a skilled cotton dyer or a skilled silk dyer." Really, after a ludicrous statement of this nature one wonders what are the qualifications for Dr. Matos to speak on the subject of dyeing at all. Why, I know master dyers in Great Britain who are skilled in the practical dyeing of pure silk, wool, cotton and artificial silk, and any conceivable combination of these fibers which it is possible to weave. I wonder what the numerous commission dyers in Yorkshire think of the statement that it is manifestly impossible for a man who is a wool dyer to be a skilled cotton dyer at the same time. Thank goodness, they possess sufficient sense of humor simply to laugh at the author of such a statement. Again, what about the managers of the dyehouses of the large garment dyers in Great Britain who have to deal with every conceivable combination of different fibers in their ordinary daily work?

May I finally be allowed to dispose of the fallacy that the standardizing and matching of dyestuffs is a mechanical sort of operation which demands no chemical skill? To be efficiently carried out it requires not only chemical knowledge but highly trained powers of observation. The work is not mechanical but highly interesting, because in the dye laboratory of a color manufacturer one is in touch with all the latest developments in new dyestuffs, new processes and new fabrics. The intelligent chemist is always coming across new points in dyeing of familiar colors, and soon realizes that the more he knows about dyeing the more there is to learn about dyeing.

In conclusion may I refer to the statement made by Dr. Mator on page 174 in the same article:

"Referring again to the amidonaphthol sulphonic acids I may mention that with the exception of one plant—and that is located in France—no single chemist has been able to successfully carry out every single operation from the conversion of the naphthalene in the first instance to the grinding and sieving of the finished product."

From my own personal knowledge I am able to say that this statement is not correct and there are others in addition to the French chemist, and they, I am pleased to say, are British.

A CORRECTION

A recent trade note in this journal misquoted an announcement of the Takamine Industrial Company, Ltd., New York City, by which it was made to appear that The Takamine Laboratory, Inc., was no longer in existence as such, and we take pleasure in presenting the announcement issued by the former concern to the trade:

"Having in mind the after-the-war trade and anticipating its broader scope we have deemed it advisable to incorporate under the title Takamine Industrial Co., Ltd., the export and import business of Takamine Laboratory, Inc., heretofore conducted at this address (120 Broadway). This new organization, capitalized at $1,500,000, will retain the same personnel as heretofore, with Dr. Jokichi Takamine as president.

"The Takamine Laboratory, Inc., under its old corporate organization, will be continued as manufacturing chemists, with factories at Clifton, N. J., and a New York office at 12 Dutch Street.

"We feel confident that the arrangements now consummated will assure our patrons the highest possible service."

The capital stock of the Takamine Laboratory, Inc., has been increased from $10,000 to $100,000.

NIAGARA BLUE B R

The National Aniline & Chemical Company, Inc., announce a new product of their factories in Niagara Blue B R. It is identical with Diamine Blue B X, which were formerly imported. These prototypes were some of the most widely used brands of Direct Blue, and were put to many special uses. Niagara Blue B R serves both for Navy Blue shades, and in combination with Erie Black for the production of Dark Blues and Blue Blacks. It is a reddish shade of Blue, especially adapted for bright shades as well as for Direct Indigo shades in combination with Black. It is suitable for all classes of cloth work, its penetrating qualities on heavy cotton goods, such as drill and light ducks, being notably good.

The new dye is similar to Niagara 2 B and Niagara 3 B, as to chemical characteristics. It dyes according to the usual methods for Direct colors, but better without soda.

Niagara Blue B R is easily soluble, fairly fast to light and washing, and fast to Acetic Acid. It exhausts fairly well. Its penetrating qualities have already been mentioned, which make it specially good for heavy cotton goods and drills. The coloring for wool is somewhat redder than that for cotton.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

B. C.—Question—We would like to have some information on the production of color from peat.

Answer—The dried and powdered peat is treated with acids; the acid filtrate is then diazotized in conjunction with b-naphthol. Cotton treated with the acid bath renders the fibers more active to dyeing with cochineal.

M. S. D.—Question—How can we carry out the "dry dyeing" process with Patent Blue, and how is the bath prepared?

Answer—One part Patent Blue is dissolved in five parts water, five parts formic acid and two hundred parts cresol. The dyeing takes from five to ten minutes at 50 deg. Cent. Yellow, red, scarlet and black shades are produced in a quite similar manner.

B. M. C.—Question—Our customers complain of the chipping off of the enamel from our dye vats. Can you suggest a remedy for preventing this defect?

Answer—The trouble is with your "ground-coat." If this is not properly prepared, chipping will invariably occur. An excellent working formula for such a purpose is as follows: Flint, 700; borax, 395; red lead, 53; sodium nitrate, 36; clay, 60, and cobalt oxide, 3.5. The melt from this is used in the usual manner.

NOTES OF THE TRADE

The "victory colors," navy blue and cherry in combination, have been adopted by manufacturers and department stores throughout the country, according to an announcement from the Textile Color Card Association of America.

March 1 to 15 is the time set for the Fourth International Sample Fair at Lyon, France, and, on the recommendation of the U. S. Department of Commerce, the Department of State has allotted the sum of $1,000 to the American consul at that city to be expended on the rental of space for the display of American goods and catalogues.

With a capital of $600,000 the Rhodia Chemical Company has been incorporated under the laws of New Jersey to engage in the manufacture of chemicals and allied products. Headquarters of the company will be located in Jersey City, that State, and the incorporators consist of Walter Haviland, H. A. Bingham and S. J. Nathan.

The Steiner-Lee Dye Works has been incorporated under the laws of Illinois with a capital stock of $10,000. The company will be located in Chicago, and the incorporators are Louis Lee, Isadore Steiner and Sarah E. Bamber.

In an announcement just sent out, Mr. Fred Wetzel informs the trade that he has opened offices in room 1207, at 131 East Twenty-third Street, New York City, where he will continue to deal in dyes and chemicals.

"The dyeing departments are having about all they can handle at present," says a Pacific Coast correspondent in the *National Dyer & Cleaner*, who continues: "The high prices for clothing and the poor quality of fabrics have a tendency to cause people to cling to their old clothes. Also, the high quality of work accomplished with domestic dyestuffs is beginning to be appreciated."

Announcing his intention to continue the business along its usual lines, Hugo Koblenzer, president and treasurer of the New Brunswick (N. J.) Chemical Company, purchased the plant of this company when it was recently put up for sale by Alien Property Custodian A. Mitchell Palmer. The price paid was not announced.

With a capital of $25,000, Sanzeri & Kempf, Inc., has been incorporated under the laws of New York to manufacture chemicals and dyestuffs. The plant of the company will be in Brooklyn, and the incorporators are J. and C. Sanzeri and A. Kempf.

Announcement has been made by the Essex Aniline Works, Inc., 85 Leonard Street, New York City, that the Boston office of this concern has been removed from 50 Congress Street to 39 Oliver Street, that city. This is the building formerly occupied by the Cassella Color Company. The Essex Works will maintain at this address a fully equipped laboratory and chemical staff to aid in marketing the products of their plant at South Middleton, Mass., which include a range of sulphur colors for cotton and chrome shades for wool, as well as a full line of direct cotton shades.

AMERICAN DYESTUFF REPORTER

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"Circulated Everywhere Dyestuffs are Used"

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FORBIDDEN FRANCE

Behind Other Allies in Development of Dye Industry, French Cannot Import Because of Trade Restrictions—U. S. Must Fall in Line

FRANCE, according to the contemporary press, is just at present in need of American or other satisfactory dyestuffs, and is unable to import any owing to trade restrictions designed to protect the French chemical industry and to place it upon an independent, self-contained basis.

Mary Brush Williams, in an article appearing recently in the *Saturday Evening Post* which took up the question of relations between French and American manufacturers of clothing, had the following to say on the subject:

"As you perhaps know, the French are not particularly expert at making dyes. They suffer from a shortage of coal tar, which is a most important basic material.

"At the close of the war an enterprising American was on the ground to try to sell them some of our dyes. He took a big order from a large silk house in Lyons and they admitted that the French factories could not supply them.

"When the American came to fill the commission he was forbidden to import dyes because he was not a member of the French dye consortium.

"In a spirit of investigation he went to Paris to discover just how adequate the supply of French dyes was to French needs. At one of the big stores he asked for some material in black for mourning; and when shown the samples he placed an order for a large amount of one.

" 'We have only a very little,' came the reply to his proposal; 'and we are forbidden to take orders because we cannot guarantee the dyes.'

" 'Very well; show me purple. That also is suitable for mourning,' the man answered.

" 'The same thing holds good for our purple,' the manager replied. 'We are in need of those colors.' .

"In need of colors and yet unable to import American dyes!"

A little further on the same writer says:

"I entertained Madame Saurer one day at luncheon.

"She put on a beautiful new costume from her very smart *couturier* and we walked from the Hotel Meurice, where she was stopping, to the Ritz. This was a distance of two short blocks. When we reached there her neck was darkened from her fur collar—which, of course, had been dyed.

"If this same situation continues and extends to more industries it will doubtless gain publicity from other hands than mine."

These anecdotes, together with the comment thereon from an experienced lay trade investigator, are interesting to the American dye manufacturer. It shows that American department stores have not been the only offenders in spreading the subtle propaganda that there is a mysterious something about German dyes which renders them superior to the products of other operatives and chemists. It reveals clearly that other countries have experienced, almost down to the last detail, the conditions which prevailed in the United States after we were no longer able to get German dyes. And while the facts brought out above were generally known to our domestic trade, a fresh viewpoint of the situation is more or less refreshing.

Before proceeding, however, we wish to take exception to the statement that "the French are not particularly expert at making dyes." No more misleading pronouncement could be fed to an American public which has, ever since 1915, read with avidity pretty much everything printed on the subject of dyes. There is sufficient truth in it to make it plausible, and although the matter is one of minor importance it should not go unchallenged. France was in almost identically the same position as England and the United States as regards her dyestuff industry when the war broke out. Germany exported annually to the French some 61,292,000 francs' worth of chemicals, consisting largely of synthetic dyestuffs, while the output of the German chemical works established in French cities was consumed by four-fifths of the French users of chemicals and dyes. Like this country, France never had *made* more than a very small percentage of her colors, but her abilities in this direction have never been open to question. The development of this industry was simply never allowed to start by the Germans, who employed the same methods of prevention which they used here and elsewhere. Unlike England and the United States, however, France had the war within her own boundaries, which naturally so effectually paralyzed all save the most essential manufacturing enterprises that the French dye industry has not yet reached anything like the same proportionate degree of growth as in the other two countries.

The trade barriers established in France obtain in England, and soon will be in operation here. It is useless to expect immediately to send dyes in any quantity to France or England—or ever to expect to dominate French or English markets for this commodity, as some predicted would be the case following the war. Since the dye industry is a "key" industry, the same reasons for desiring independence of outside dyemakers exist in these countries as exist here. No, the other markets formerly held by Germany — South America, China, Spain, etc.—are the only legitimate prey for our salesmen, and calls for trade in dyes with our allies only serve to confuse the main issue in the minds of the reading public.

The conclusion drawn by the writer quoted above provides the answer to the question: What, then, is to be done toward selling small quantities of dyes to the French to fill in the gaps in their repertoire until these colors can be made commercially in that country? She thinks that with the bars of both countries up a "trade balance" may be established, we patronizing certain of French industries which need to be kept going, in return for which the French will permit the importation of limited quantities of other commodities—such as dyes—needed by the French. This is what we may expect to see take place, but it must be remembered that the war is altogether too recent an affair to permit of such adjustments being made within a year or two at the very soonest. The same will hold true of England, who in future bids fair to become our most powerful competitor in this field.

Another important factor exercising a favorable influence for the establishment of such relations is pointed out by Consul William H. Hunt, stationed at Saint-Etienne, France, by the U. S. Department of Commerce, who says:

"The bond of sympathy between France and America becoming daily more intimate, the high opinion the French have of our industrial methods, the knowledge of our progress in the domain of chemistry, and the results obtained, are so many factors which will contribute to the successful introduction of the American chemical products into France after the close of the war."

That is an important point in our favor. The Americans amazed the French by their speedy erection of gigantic docks and ordnance bases when America entered the war, and in the past eighteen months have been steadily building up a reputation with the French for first-class commercial methods. We shall, by preserving it, be able to have the entree, so to speak, when the time comes for the resumption of normal trade relations. The writer of the article mentioned in the opening paragraphs visited the salesroom of a well-known New York designer, who said, regarding the French: "We've been getting lots more trade; and we'll keep it. They're crazy about us!"

"But," said the writer, "if Paris has more style, what is it they're crazy about in us?"

"Oh," came the reply, "our materials and our organization—our methods. They like our workmanship A-number-one!"

So much, then, for the possibilities. The French, apparently, like us, and for the next year or two our dyes are going to outrival theirs in quantity and variety—until they have caught up with their needs. But meanwhile, with both France and England looking out for themselves and doing it in the most direct fashion by adopting modifications of the licensing idea, America must also establish a licensing commission in order to be on an equal footing with these two countries when the time comes to make a bid for some of their trade. Time is passing rapidly and the delay now of a month or two may cost us dear later on. By the time these words find their way into the reader's hands the Sixty-sixth Congress will have come into official existence. It will likely listen favorably to protection talk, and the project now uppermost in the minds of the American dye industry—the creation of a licensing board—should be broached as soon thereafter as the necessary action can be taken.

DYESTUFFS OF NATIONAL IMPORTANCE

By Franklin W. Hobbs

(Address at a meeting of American dyestuff manufacturers in New York.)

Dyestuffs have assumed a national importance since the war. Before that time we knew that most of them were imported, that the supply was plentiful, the price reasonable and little serious attention was given the subject by the people at large. However, we learn by experience and perhaps the more costly the experience the better we learn our lesson. The war came most unexpectedly, and the American people were suddenly made to realize our almost complete dependence on Germany for the much-needed supply of dyestuffs. Although of almost insignificant money value compared with the total value of the manufactured products in which they were used, they were none the less of vital importance.

In this presence it would be idle for me to attempt to tell of the wonderful progress that has been made, in such a short period of time, in the manufacture of American dyestuffs, for you are the men who have made the seeming miracle an accomplished fact. I will, however, very briefly refer to an address I made on December 9, 1916, almost exactly two years ago, before the Art Club of Boston, on "Textiles: the Backbone of New England," in which I then said, in speaking of the dyestuff situation:

"The situation was serious not only in textiles, but in every business where colors were needed,—ink, leather, paper, and even the ornamental cherry at the bottom of a famous American drink was threatened. It looked like an era of black and white. And then the American dyestuff manufacturers came to the rescue. Fortunately for all of us, there were a few men in the United States already engaged in a small way in the manufacture of dyestuffs, mostly made from imported intermediates or partly manufactured dyes. These men had the ability, the courage, and the foresight immediately to enlarge their plants, and to attempt to meet the situation. They went ahead doubling, trebling their plants, and investing great sums in the business, having confidence that the American people would see that their enterprise was protected against foreign competition after the war, if they took the risk then.

"There are many colors not yet made, as naturally manufacturers have first made those most needed and easiest to make, but I have no doubt but that in the near future every color necessary will be made here. The prices are high, due largely to the high cost of raw material, which, in turn, is due to abnormal demand on account of the war. The dye-maker feels that, owing to the uncertainty of the whole situation, he must pay for the new plants in a few years, so that, if at the end of the war, he cannot meet conditions, or is not given needed protection, he can scrap the plants without loss.

"At the present time it is a fact that we can obtain a supply of most colors, the number is steadily increasing, the outlook is most satisfactory, and most important of all, the colors are as fast as German or other European colors. With the falling prices for the needed raw materials, which are expected after the war, I believe the business will remain largely in the hands of the Americans, and that a great forward step has been made in the American industry.

"Such progress in so short a time seems almost like one of the tales of Aladdin and his lamp. Fortunately, however, for all of us, these are solid and substantial facts, and a great credit to the men who have so wondrously built up these enterprises.

"It is not generally understood that a plant making dyestuffs can be turned in time of need into one for the manufacture of explosives, as the same raw materials and the same apparatus are used for both purposes. The famous dyestuff plants of Germany are running to-day to a great extent on explosives, and the establishment of the great dyestuff industry in Germany was a part of their plant for national preparedness—a commercial success in peace and a national necessity in war. Let us profit by their example and our recent experience, and see that the dyestuff industry is established on a firm basis in this country, not only to provide the needed dyestuffs for our mills, but to make certain the absolutely essential supply of explosives for our national defense. * * *"

It is generally a dangerous thing to prophesy, but in re-reading that statement of two years ago, I am happy to state I find nothing I wish to change, and it seems to me that most of the developments then predicted have come to pass. To-night I wish merely to emphasize a few points and conclusions:

First, We must see that the American dyestuff industry is firmly established as a national industry to supply the dyes needed for peace and the explosives for war. That I believe to be a sound national policy and one of the lessons the war has taught us.

Second, The American textile manufacturer has supported the American dyestuff manufacturer during the war and will continue to support him, as I have indicated, in the future. But, gentlemen, the war is over. We have paid without complaint very extreme prices. You have already made enough in profits to charge off the cost of the sudden development you were called on to make. You will soon have to lower costs of raw materials. It seems to me, therefore, that we have a right to expect, and I have no doubt you will soon announce,

(*Continued on page* 12.)

AMERICAN DYESTUFF REPORTER
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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

SWISS COMPETITION

We understand through reports reaching us from Americans, who, since the signing of the armistice, have gone abroad to investigate dyestuff conditions in Europe, that some Swiss manufacturers have expressed themselves as willing to make long-time contracts for the delivery of dyestuffs, duty paid, in America, at prices 10 per cent below those now current in the domestic market, and that they are willing to guarantee the fulfillment of these contracts by inserting a clause to the effect that 25 per cent of the invoice price will be allowed in the form of liquidated damages in the event of their failure to deliver.

It is the opinion of the REPORTER that if this information is correct and, the Swiss manufacturers are in reality making or contemplating the making of any such contracts, they are taking very long chances, indeed. In the first place, the question of a further upward revision of the tariff will undoubtedly receive serious consideration at the hands of the new Congress and should the duty on dyestuffs be materially advanced, it will make it extremely difficult for the Swiss, or anybody else, to lay down dyestuffs and intermediates in New York at prices 10 per cent below those now current, and, in the event that the necessary legislation providing for a Licensing Board should be enacted—which we believe to be extremely probable—any manufacturers who had written the 25 per cent liquidated damages clause into their contracts would find themselves very heavily penalized in case licenses were denied for the importation of their products.

It may be that the Swiss feel they can anticipate the action of our legislators better than we ourselves, but if all elements of the dyestuff industry will unanimously work for the creation of a Licensing Board, our friends on the other side of the water may find that they have erred grievously in their calculations.

A possible explanation of such contracts as are mentioned above, and one which seems to quite reasonable, is that the Swiss manufacturers do not contemplate the importing of the products for which they may take contracts but that they expect to manufacture them on this side of the water. It was announced in the REPORTER two weeks ago that a committee representing the leading Swiss concerns was expected in this country early in April with a view to considering the feasibility of transplanting large portions of their plant equipment and personnel bodily from Switzerland to America. It is our belief that something of this kind is extremely likely to be done, and, in this event, the question would be purely one of how cheaply the concerns might manufacture once they were established here. If it is their belief that they can produce dyestuffs in this country 10 per cent cheaper than the current prices, it is to be reasonably expected that other American manufacturers already located here can do fully as well. In this case it would simply mean that they anticipated a 10 per cent reduction in the selling prices of dyestuffs within the next couple of years, which is by no means an extreme expectation, but is rather a view in which American manufacturers are inclined to concur.

Dividends of 1¾ per cent on its preferred stock, payable quarterly in April, July, October and January to stockholders of record March 14, June 14, September 13 and December 13, a total of 7 per cent, have been declared by the United Dyewood Corporation, New York City.

DYESTUFFS OF NATIONAL IMPORTANCE

(*Continued from page* 9.)

much lower prices on all dyestuffs. We expect you to give us as soon as possible the benefit of the changed conditions that will follow peace.

In conclusion, let me state that our interests are mutual. We need you. You need us. Let us go on together, and so build up our national manufacturing supremacy that we may be independent of any other nation, not only for dyestuffs and textiles, but for all other commodities needed for the comfort and welfare of our own people.

FASHIONABLE SHADES ON SILK

By Dr. Louis J. Matos

By far the greatest number of shades dyed upon silk are produced with acid colors. These colors have been used for many years, not only for piece goods but for linings, ribbons and other ornamental silk fabrics, fringes, braids, etc. It is useless in this connection to mention the particular application of any one group of colors to pure silk, for the reasons that such silk may now be regarded as a veritable curiosity, its position in the industry having been almost superseded by tin-weighted silk.

For many years and up to the outbreak of the war, silk dyers in the United States were in a position to procure without any difficulty a range of dyes with which they were able to make all the shades called for and made popular by the syndicate cards then current. As a matter of fact, a number of these dyes then in current use did not possess any very remarkable degree of fastness, particularly as to light, although some of these same dyes produced shades that were faster to light than others. On the whole, they were not regarded as dyes possessing maximum fastness, for the reason that such ultra-fast dyes were not specifically demanded by either the mill trade or the ultimate consumer.

When the war broke out and the supplies of the German dyes fell off, recourse was made to dyes of domestic manufacture, that, for the time being, sufficed to meet ordinary requirements, and since the American dyestuff industry has gradually reached respectable proportions the number of dyes suited for silk dyeing has consequently increased. The result is that at the present time the dyes made use or by the silk dyer differ in no way from the dyes formerly imported, and this condition places the dyer in the silk mill, so far as his supplies are concerned, in exactly the same position that he employed prior to the outbreak of hostilities.

As a general rule, colors for silks are very much brighter and more vivid than colors as applied to the general run of textile fabrics. The reason for this is that silk as a fiber possesses more inherent luster than any other fiber, and this property, coupled with a bright color, permits the use of silk for purposes where no other fiber could reasonably be used. The foregoing remarks, of course, have no reference to fabrics or decorative materials made from artificial silk. This latter fiber, its properties and treatment form a distinct branch of the textile industry.

Broadly, silk dyeing is not difficult, the application of the acid dyeing colors to skein silk and to silk in other conditions of manufacture finds few obstacles, but owing to the delicacy of the fiber it must be handled with a degree of care not usually bestowed upon either cotton or wool. The acid colors that have been selected for duplicating the shades of the 1919 Spring Season Color Card are such as may be applied to silk in a boiled-off liquor that has been slightly acidulated with a small amount of oil of vitriol. The dye-bath having been prepared with the proper combinations of dyes and in their proper proportions, the temperature of the bath is then raised to about 120 deg. Fahr., when the silk is entered and, if skein silk is being dyed, given two or three turns to equalize the saturation of the skeins. The temperature is then gradually raised to the boil and maintained at or near that temperature for about one-half to three-quarters of an hour. Most dye-baths will exhaust after this period of immersion, but in the case of full and heavy shades it may be necessary to add a further small quantity of oil of vitriol to effect the clearing up. This clearing up should take place without further boiling, but it does require that the silk be kept in slow but constant motion to equalize the absorption of the color. After dyeing, the silk is rinsed carefully and brightened by one of the several methods familiar to dyers, olive oil perhaps being one of the most common, although it is good practice for some kinds of silk to be brightened with the acid of acetic, tartaric or lactic acid. In the case of weighted silks these acids are necessary. In no case should oil of vitriol be used.

The dyeing formulas given below indicate the amount of dyestuff in percentages, which will enable the dyer to make whatever calculations he requires to fit the weight of silk that he has in hand to dye. The names of the shades below are those given in the 1919 Spring Season Shade Card, but they do not follow the order given in the card.

PEONY	2.16 %	Fuchsine D
	.96 %	Orange A Conc.
	.46 %	Wool Violet 4 B N
BLUE DEVIL	2.4 %	Buffalo Black N B R
	.60 %	Wool Blue R
AZURE	.40 %	Brilliant Acid Blue
	.06 %	Wool Violet 4 B N
VERDURE	2.66 %	Acid Green L Extra
	1.18 %	Azo Yellow A 5 W
	.135 %	Orange A Conc.
CHAMPAGNE	.1175%	Azo Yelloy A 5 W
	.065 %	Fuchsine D
	.025 %	Acid Green L Extra
MARINE	1.80 %	Buffalo Black N B R
	1.40 %	Wool Blue R
WEIGELIA	1.36 %	Fuchsine D
	.016 %	Orange A Conc.
	.02 %	Wool Violet 4 B N
RUST	3.28 %	Azo Yellow A 5 W
	1.44 %	Fuchsine D
	1.08 %	Buffalo Black N B R
AMERICAN BEAUTY	4. %	Fuchsine D
MICHIGAN	1.02 %	Brilliant Acid Blue G 2502
	.32 %	Acid Green L Extra
	.11 %	Orange A Conc.
BISHOP	1.60 %	Wool Violet 4 B N
	.32 %	Fuchsine D
CRANE	.505 %	Fuchsine D
	.33 %	Acid Green L Extra
	.24 %	Azo Yellow A 5 W
CHERRY	2. %	Buffalo Fast Crimson R
HURON	.28 %	Brilliant Acid Blue G 2502
	.08 %	Acid Green L Extra
	.02 %	Orange A Conc.
ALPINE	.68 %	Fuchsine D
	.80 %	Acid Green L Extra
	.09 %	Azo Yellow A 5 W
PRELATE	.48 %	Wool Violet 4 B N
	.12 %	Fuchsine D
BARK	1.30 %	Azo Yellow A 5 W
	1.32 %	Fuchsine D
	.6375%	Acid Green L Extra
TITIAN	2.28 %	Azo Yellow A 5 W
	.91 %	Fuchsine D
	.02 %	Buffalo Black N B R
GIGAS	.215 %	Wool Violet 4 B N
	.61 %	Fuchsine D
ETHER	.20 %	Brilliant Acid Blue G 2502.
BUTTERCUP	.36 %	Azo Yellow A 5 W
	.055 %	Orange A Conc.
	.01 %	Acid Green L Extra
CARNATION	.76 %	Fuchsine D
	.26 %	Orange A Conc.
	.105 %	Wool Violet 4 B N
GULL	.18 %	Fuchsine D
	.12 %	Acid Green L Extra
	.12 %	Azo Yellow A 5 W
CORAL	.04 %	Croceine Scarlet M O O
	.02 %	Orange A Conc.
DANDELION	.66 %	Azo Yellow A 5 W
	12. %	Orange A Conc.
	.01 %	Acid Green L Extra

JAY
.83 % Acid Green L Extra
.31 % Wool Violet 4 B N

CATTELYA
.05 % Wool Violet 4 B N
.11 % Fuchsine D

NAVY No. 2
2.4 % Buffalo Black N B R
1.2 % Wool Blue R

DOE
.88 % Azo Yellow A 5 W
.59 % Fuchsine D
.21 % Acid Green L Extra

In the foregoing recipes we find mentioned a Fuchsine D. This is a basic color, and for the purpose of this series of shades it has been found to possess properties better suited for shading and toning than other colors not belonging to the same class. Fuchsine D is a basic dye, and when it is used in combination with dyestuffs of the acid group the acid used in the bath for acidifying and clearing should be added in small portions after the silk has taken up from the bath the greater portion of the dyestuff.

The quantities indicated in the formulas are all in percentages; while some of the percentages may appear to be somewhat extended, yet they show the exact quantities necessary for producing matches on weighted silk ribbon and corresponding to the shades in the Spring Card.—*Silk.*

The capital of the International Woolen Company, Inc., of New York City, has been increased from $10,000 to $20,000, according to a recent report issued by the company.

At an estimated cost of $7,000, the Widder Dye & Chemical Company, 155 Broadway, Brooklyn, N. Y., will erect a one-story brick and concrete building at 65 South Second Street, that city.

AMERICAN CHEMICALS ESTABLISHED; HIGH RECORD IN EXPORTS FOR YEAR

Shipments of $175,000,000 Compared with $27,000,000 Prior to War Turn Flood Tide to United States

No industry in the United States has shown a more wonderful growth during the war than that of chemicals. The exportation of chemicals from the United States in the year which ends with this month will show a total of approximately $175,000,000, against $27,000,000 in the year immediately preceding the war.

While of course the exportation of strictly war materials such as explosives, shells, etc., shows perhaps a larger increase during the war period, the growth in the production and exportation of chemicals for which a permanent demand could be expected is especially suggestive in this country with such large possibilities in this line, both for foreign and domestic markets. A compilation by the National City Bank of New York shows that the value of chemicals exported steadily grew from the beginning of the war, and as above indicated will approximate $175,000,000 in the current year, against about $27,000,000 in the year immediately preceding the war.

United States Always an Importer

The United States has always been a large importer of chemicals, the total value of this class of merchandise imported prior to the war being about three, and in some instances as much as four times the exports, and while the demands of the war have been such as to somewhat stimulate the importation, meantime the percentage in the growth in imports has been small compared with the percentage of growth in exports. The imports grouped under the head of chemicals consist largely of classes of materials not produced in the United States, and included in the fiscal year 1918 $70,000,000 worth of nitrate of soda, a Chilean product, and $22,000,000 worth of gums, strictly tropical products.

Eliminating these strictly tropical articles which have been classed by the Government as "chemicals," the present importation of manufactured chemicals is extremely small, indicating that our own manufacturers are at present supplying the great markets for chemicals in the United States, and at the same time sending nearly $150,000,000 worth a year to foreign markets. In the full fiscal year 1918, the chemicals exported aggregated in value $152,000,000 against $27,000,000 in the year preceding the war; $16,000,000 in the first year of the war and $124,000,000 in the second year of the war.

Big Gain in Dyestuffs

The most striking feature of this growth in the exportation of chemicals occurs in dyes and dyestuffs, of which the United States was, prior to the war, an extremely small exporter and a very large importer. The total value of dyestuffs exported in the fiscal year 1918, was $17,000,000, against $12,000,000 in 1917, $5,000,000 in 1916, $1,000,000 in 1915, and less than $500,000 in 1914, the year preceding the war. Prior to the war the exportation of dyes and dyestuffs had never exceeded about $500,000, while imports of dyestuffs prior to the war aggregated from $10,000,000 to $15,000,000 per annum.

Dyestuffs exported to Great Britain in the fiscal year 1918 totaled over $2,500,000, against $70,000 in the year before the war; to France, $1,630,000 worth, against $2,000 in the year preceding the war; to Italy, $1,182,000 worth, against $11,000 in 1914; to Japan, $3,233,000 worth, against nothing in 1914; to India, $1,948,000, against $93 worth in 1914, and to Brazil, $1,282,000 worth against $65 in 1914.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

B. P. S.—Kindly give us a method for treating photographic plates so they will possess a definite minimum sensitiveness in the green of 530 uu.

Answer—Make a solution of methyl violet 1 : 20,000 in 50 per cent alcohol, and bathe the plate in this for five to ten minutes. A panchromatic plate is best adapted for this purpose.

D. W. J.—Question—Please give us a method for the preparation of acetyl derivatives containing hydroxyl groups.

Answer—The method most convenient for the acetylation is to dissolve the substance in ether or benzine, and digest with the necessary amount of acetyl chloride and dry alkali carbonate. The latter should be in proportion necessary to form a hydrogen salt as represented by the equation:

$$\text{R.OH} + \text{CH}_3\text{.COCL} + \text{K}_2\text{CO}_3 \rightarrow \text{R.O.CO.CH}_3 + \text{KCL} + \text{KHCO}_3$$

NATIONAL ANILINE ELECTS OFFICERS FOR THE YEAR

At the annual meeting of stockholders of the National Aniline & Chemical Company, Inc., on Monday, February 17, and at the succeeding meeting of the directors on Wednesday, February 19, the officers and board of directors were elected as follows:

President and chairman of the board, William J. Matheson; vice-presidents, Dr. William Beckers, Robert Alfred Shaw and Dr. L. C. Jones; acting treasurer, William H. West; assistant treasurers, H. S. Trott and T. S. Baines; secretary, William T. Miller; assistant secretary, Walter E. Rowley; chairman of executive committee, Henry Wigglesworth.

The personnel of the board is as follows: Dr. William Beckers, New York; H. .H. S. Handy, Syracuse; Dr. L. C. Jones, Syracuse; Clinton S. Lutkins, New York; William J. Matheson, New York; Eugene Meyer, Jr., New York; W. N. McIlravy, New York; F. M. Peters, New York; T. M. Rainhard, New York; Robert Alfred Shaw, New York; L. Frank Stone, New York; Dr. R. C. Taggesell, Buffalo; Orlando F. Weber, New York; Henry Wigglesworth, New York.

NOTES OF THE TRADE

Announcement has been made by the Standard Knitting Mill, Inc., of Newburgh, N. Y., that the capital of this company has been increased from $25,000 to $500,000.

French and German chemists are reported to be collaborating on the production of synthetic dyes and other chemicals at the Hoechster Dye & Chemical Works, which was recently seized by the French army of occupation. The idea is to export these products to the Allied countries, shipments of chemicals to points in Germany having been prohibited.

Extensive additions to the plant of the Valkone Dyeing & Finishing Works, Inc., Oxford and Howard Streets, Philadelphia, are being planned by the heads of the company.

Announcement has been made by Felix A. Tomalino, of the Tomalino Silk Dyeing Company, Philadelphia, that he has withdrawn from this firm and organized a company of his own, to bear his name, which will be housed in a new building at Front and Venango Streets, that city. Dyeing machinery is being installed.

After two years of research work for the Roessler & Hasslacher Chemical Company, Perth Amboy, N. J., Paul J. Carlisle has been placed in charge of the new department which this firm is adding to its plant in St. Albans, W. Va.

Following a service of eight years as overseer of dyeing for the River Spinning Company, Woonsocket, R. I., Edward F. Doheny, Jr., has resigned his position to become a salesman for the Newbert Color Company, Boston.

As the result of a decision by Judge Morton in the United States District Court, Boston, in which the demurrer of Frederick A. Atteaux was overruled, the latter will now be obliged to stand trial on the charge of defrauding the Government by undervaluing shipments of foreign dyestuffs.

With a capital of $50,000, the Chemical Exchange of the United States has been incorporated under the laws of New York State. Headquarters will be located in New York City, and the incorporators are H. Finkleman, S. Hechtkopf and N. Goldbach.

AMERICAN DYESTUFF REPORTER

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PEEVES AND PRAISES

Mill Representative Mingles the Two at Behest of Reporter Representative—Likes American Colors but Deplores Lack of Uniformity

THE speaker leaned well back in his swivel desk chair, cigar poised between thumb and forefinger, and blew a meditative cloud of smoke toward the ceiling. "Yes," he continued, "I'm telling you that the American dye industry would be all the better for a little keen competition from outside sources. It would wake 'em up. It would make 'em a little bit more thankful for some of the blessings they've received. Some of 'em don't seem to realize that they *have* anything to be thankful for.

"—Not that they haven't done wonders," he added hastily. "We should be the last to rob them of the credit of keeping things going when Germany stopped sending colors over here and we didn't know which way to turn next. The American manufacturers came to the rescue in wonderful style and sometimes I wonder how they were able to produce the results offered us as quickly as they did." He waxed enthusiastic. "Nobody who isn't actually in the game will perhaps ever realize just how desperate we were. We had to take what we could get—-and mighty glad we were, too, when we found them offering in many cases something a good deal better than the mere makeshifts we expected. It shows we have chemists that are as good as any in the world, and a darn sight better than most when it comes to a call for quick action. But if some foreign country—*not* Germany—came along to-day with colors which we knew would be exactly the same the next time we ordered, and made us prices a little lower than we're paying now, we'd be strongly inclined to buy. It wouldn't be so much on account of the better prices either." And the speaker thrust both thumbs into the armholes of his vest and waited for the next question.

II

When the time came this week to consider a theme fitting and proper to set before the readers of the REPORTER a discussion took place. It was agreed, that the British Licensing scheme had been pretty well covered and that there was nothing of immediate and intense interest hovering around the trade—no gigantic, vital problem save the ever-present one of "carrying on" and reaching out after the South American and Chinese markets, with which to startle and electrify a breathless public. Throbbing, corduroy brows were laid wearily to rest in the soothing embrace of perspiring palms, and weighty thoughts, weighing, oh, say anywhere from five hundred to a thousand pounds apiece, began to rumble back and forth across the confines of the editorial sanctum, making the air vibrate and the windows rattle with the sheer ponderosity of overwhelming avoirdupois. The tension became absolutely frightful and it seemed as though something was going to give way when the office-boy's strident treble severed the thick atmosphere like a knife. "Why," he shrilled, "don't you go and talk to one of them consoomers? They'll give you more ideas than you'll git layin' around here all day."

A heavy glass paperweight dented the wall directly behind the spot where his grinning countenance had been an instant before, while the left member of a team of galoshes, caught up from somewhere, carried away a rack of pencils from the top of his desk. The editor was arrested in the act of reaching for his gun to finish the job only by the hasty slamming of the sanctum door and the sound of running footsteps receding down the hallway.

Poor child! Although a privileged character, he had presumed too far. Still, how could he know that his well-meant suggestion was in defiance of the most sacred traditions of the publishing business. All intelligent people, of course, are aware that interviews are made, not born. This saves time, expense and trouble, and assures more satisfactory results to both reader and publisher than the old-fashioned method of talking with the victim. It guards against the printing of objectionable things. It—it's so much better all around.

Nevertheless, the germ had been implanted. Satan peeped around the corner and smiled invitingly. Why not? It was realized that the views of a consumer might be biased, and that they would certainly be antagonistic to high prices. He must be expected to have a grouch about something or other, and his opportunities for observation might have been more or less limited. All these things were weighed, and it was decided that no matter what the result might be, it should be printed as spoken. It was felt that, making the necessary allowances alluded to above, the result ought to be interesting for its own sake. The REPORTER is aware that many injustices have been done, and that the speech may often not have been based on mature reflection. But it is deemed of interest, and is to be the first of a number of talks with dye consumers and manufacturers to follow in these columns. It is, therefore, offered without apology in the full knowledge that the reader will be able to separate the wheat from the chaff fully as well as we could do it for him.

The decision being reached, a man representing the interests of six large mills in the East and South was selected. He was informed that his identity would be carefully shielded and told to fire away.

III

"I doubt if we should ever buy dyes of Germany again," the speaker said in response to the next query. "Yes, I mean that. Of course, I am only voicing the sentiments of my own organizations, but so far as we are concerned, we should, I believe, have to be driven to the last extremity before we would touch a pound of German-made color—and then, on second thought, I think we'd rather go without. At any rate, it would take worse conditions than we experienced in 1915 to drive us to that step, and this means that no matter how good or how cheap the German dyes were, there would be no attraction. It will take more than one generation to wipe out the memory of that crowd's nastiness and treachery, and we would much rather not have anything to do with them. I think the others feel the same way about it, too.

"But at the same time," he continued, "I don't think we've always had the very best of treatment from the American manufacturers. Back in 1915, of course, they had us right where they wanted us—and knew it! Mind you, I'm not whining because they couldn't supply us with dyes such as we had been using, even at top-notch prices. They did a very good job, for which we are indebted to them, and we have no complaint to make on that score. But—perhaps it is human nature—we did encounter a great deal of what I might call unnecessary arrogance. They were a bit *too* high and mighty. If we contracted for dyes at fifty cents and the price went to seventy-five meanwhile, we simply didn't get our goods, with never a chance to bid in at the increased price either, in a majority of cases. This seems to have been the case particularly with the smaller manufacturers and the brokers. It was a case of 'first come, first served,' sure enough, but the trouble was that after having ordered a consignment of a certain dye which we were informed we could get, anyone could come along during the next hour, offer a higher price, and walk off with the whole business. Well, that was some time ago, and since then conditions have improved enormously, not only in the quality of the dyes, but in the service as well. But there is still a little too much of that spirit alive for the good of the dye industry, and that's why I say that a little outside competition would wake 'em up and make 'em understand that they can't have everything their own Japanese way any longer. I'll venture to say that I'm just as anxious to see the industry firmly established in this country as the dye manufacturers themselves, but I'm hanged if I want 'em to think they own the earth."

Asked to give his views regarding the results obtained with American dyes, our informant replied "Fine! excellent! We have very little complaint to make on that score. As far as I can see, there doesn't need to be any more of this talk about American dyes not being as fast as the German article. But we do wish they could maintain greater uniformity. That, so far as our experience goes, is the most serious fault at present. Two barrels of what purports to be the same dye, never give the same results as regards shade. Even at that, it's not so bad as it used to be. And it may likewise result in part from the fact that we don't use them right. The Germans, of course, used to send chemists into the mills to show our dyers how to use colors to get the desired effects, but the war naturally has prevented the American manufacturers from following suit as yet. They could not spare the men, who were needed elsewhere. Now they are beginning to do so, and I look for great things from this before another year is out."

Asked what he thought of the scheme for creating a licensing commission, the mill man said, "I'm afraid we'll never get it. Why? Because it sounds too good to be true. Yes, I know it is being done in England and France, and it is just what this country needs. However, we must hope for the best."

IV

There are, no doubt, many statements in the foregoing which are open to criticism. But it must be remembered that it is far from being an intended attack on the dye industry. It merely serves to show what at least one consumer thinks of the American colors, which is well, and of the treatment meted out to him by the dye manufacturers during the mad scramble of the textile mills to keep their heads above water in the early days of the war, which is *not* so well. It brings out the things which have been annoying some of the consumers, and the things which have pleased them and, as before stated, is herewith offered for the reader to dissect at leisure. Other opinions, some better and some worse, will follow in an early issue.

The Hooker Electrochemical Company is considering plans for an addition to its plant at Niagara Falls.

ACIDS IN BLEACHING

Sour milk was at one time the only acid employed in the bleaching processes carried on in India, Holland, England, Belgium and the north of France, but it has given place to the mineral acids. Indeed, the organic acids have not since found much use except in certain special instances, sulphuric, and especially hydrochloric, acid having taken their place. It was in 1834 that Greau noted the usefulness of hydrochloric acid in the bleaching operation, and who recognized that it was the best acid to apply after the lime boil, because it gives rise to calcium chloride, which is far more soluble than calcium sulphate and as a consequence more easily eliminated during the washing operation. In those countries where it was possible to work economically with sulphuric acid, notably in Russia, experience has shown that one washing operation well conducted with a plentiful supply of water suffices, without fear of poor results, to permit the souring to be done with sulphuric acid, since the large volume of water used in the washing satisfactorily removes the sulphate of lime from the material. When souring with hydrochloric acid it is advisable to add about 10 per cent of sulphuric acid to protect any lead pipes, etc., from corrosion by the hydrochloric acid. In the course of time the sulphuric acid forms a protecting coating of lead sulphate on the lead. The acids are ordinarily employed cold and at a strength varying from ½ to 2½ deg. Tw. By raising the temperature of the sours their action is made more energetic, but it is very advisable to operate with precaution. Camille Koechlin has prescribed using after the chemicking a solution of sulphuric acid (½ to 1 gram per liter) and at a temperature of 80 deg. Cent

H. Thies has recommended the use of warm solutions of acids, particularly in the treatment of cotton materials generally difficult to bleach. H has also proposed the addition to the sulphuric acid of a proportion of hydrofluoric acid (10 grams of sulphuric acid, 142 deg. Tw., per liter of water, and ½ gram hydrofluoric acid), with the object of attacking the silicic acid contained in the cotton. Tests, however, have been made on about 1,000 pieces of cotton cloth to determine what is practically the influence of the hydrofluoric acid. One-half had received the action of hydrofluoric acid and were divided into lots, some left in the white state, others dyed, and others printed. Careful examination failed to show any difference between those goods which had been treated with hydrofluoric acid and those which had not. From this experience it has been concluded that, although analysis reveals the presence of traces of silica in cotton (although it is not known in what form it is present), there is no benefit to be derived in bleaching by resorting to the use of the hydrofluoric acid to eliminate the silica. When employing hydrochloric acid for the souring it is advisable to protect as well as possible the material during the treatment from the sunlight, and the same precautionary measure should be adopted during the operation of chemicking. After souring, the subsequent washing does not need to be very complete when the next operation is the alkali boil, and no damage to the material may be feared; but in any other circumstances the washing should be such as to effect the removal of the last traces of acid. With an insufficient supply of water available, notably in dry seasons, a small amount of ammonia, at any rate sufficient to neutralize any trace of acid, should be added to the washing squeezer before the drying.

Ultramarine is often employed for the purpose of tinting the white, and the slightest trace of acid left in the goods will then become evident, as ultramarine is very sensitive to acid and becomes decomposed. In actual working with sours it is very necessary to adopt means of maintaining the strength of the acid solution at its proper level, and this cannot be done sufficiently exactly by the use of the hydrometer. A convenient way of testing the souring liquor consists in using as indicator a solution of soda colored by turmeric. A solution of soda at 52 deg. Tw., colored with turmeric, should neutralize and therefore decolorize one-half to two parts of acid in the gray sours and two and one-half parts in the sours after chemicking. Besides hydrochloric and sulphuric acids, use is made of acetic and oxalic acids, especially for the souring of fabrics containing colored portions, and in a few other special circumstances. According to Talifer, in *L'Industrie Textile,* acetic acid does not attack textile fibers, and the salts it forms with the carbonates and the hydroxides are very soluble. Oxalic acid acts similarly to acetic acid, with the additional recommendation that it dissolves iron salts.—*The Textile Mercury.*

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

RETURNING CONFIDENCE

Developments in the business world during the past two or three weeks have shown beyond peradventure of a doubt that commercial confidence is returning at a constantly accelerated pace. There was a protracted period following the signing of the armistice during which business of all kinds suffered from a very natural uncertainty, and there were not lacking those prophets who predicted more or less immediate disaster. The disaster, however, has failed to materialize and, after waiting in vain four months for its appearance, business men generally have come to the conclusion that it has been definitely side-tracked, for the present at least.

In the dyestuff field the signing of the armistice found the majority of consumers fairly well supplied with goods for their immediate needs, and in the majority of cases they took the position that there was no urgency for them to buy further and that materially lower prices could be obtained by withholding their orders from the market. This condition has now, to a great extent, righted itself. Stocks of dyestuffs in consumers' hands have been reduced very materially by the ordinary process of consumption, and the textile and other trades are now beginning to find the necessity of coming into the market for the supplying of their immediate requirements. Prices have, of course, declined to a considerable extent, but we feel confident that the bottom has been reached and that from this time onward they will tend to recover.

A stiffening in prices by its very nature stimulates buying. Very few consumers care to buy on a falling market, but let prices once become steady or show an inclination to advance, and they will make haste to place their contracts before prices rise any higher. This is the condition in which the dyestuff industry is placed to-day. Our advice to consumers is, that they show their confidence in the future by placing their orders for future requirements with as little delay as possible. By so doing they will not only secure what we believe to be very favorable prices but will, in addition, be adding their bit towards the speedy resumption of normal business conditions.

IMPORT VALUATIONS

It is a well-known fact that in prewar times the undervaluing of dyestuffs and intermediates imported into this country from Europe was quite a common custom. In fact, it may be believed that the Government connived at this practice. As matters then stood, no one was harmed except the Government, and they only in the loss of revenue. There was practically no American dyestuff manufacturing industry and the consumers were thus able to buy their necessary dyestuffs cheaper than if proper valuations had been fixed on them and full duty paid.

A totally different condition exists to-day and with the possible increase of importations in the near future it behooves American dyestuff manufacturers to see to it that the imported products are entered at their proper valuations and that full duty is paid. The tariff is not intended so much for revenue as for protection, and if undervaluation is tolerated the protective feature loses a great deal of its potency and, incidentally, the revenue obtained by the Government is materially less.

The Prospect Dye Works, 694 Coney Island Avenue, Brooklyn, N. Y., has increased its capital from $6,000 to $12,000, to provide for expansion.

THE GERMAN DYESTUFF INDUSTRY TO-DAY

The following report, dated November 5, was recently received at the U. S. Naval Intelligence Office from a reliable source in Denmark, and is interesting in shedding some light on the present condition of the dyestuff industry in Germany:

"The question of the future of the German aniline dye industry began to occupy interested parties very shortly after they had realized that the war would probably be of long duration. The problem was studied by a number of the foremost German specialists. The most optimistic among them pinned their faith to the many earlier statements made by French, American and English writers to the effect that no other country had experts equal to the German, who combined science with practice so efficiently; therefore, the latter need not really fear competition. After normal conditions had again been established there would be such a craving for German colors that no feeling of antipathy toward Germany would be able to boycott German dyestuffs. Dr. Witt, a well-known German color expert, arrives at the conclusion, in his pamphlet dealing with the English color industry, that England's manufacture would not in the immediate future develop into a business of any great importance. The history of dyestuffs teaches us that England possessed all the conditions requisite for the growth of this industry; all of these, however, she neglected to develop.

"According to A. W. Hoffman, it is difficult to see what outside causes have contributed to this. It is certain that England was not a suitable market for dyestuffs and fine chemical products where a constant study of detail and fine technique is required, while at the same time the larger manufacturing problems must not be lost sight of.

"Basing his opinion upon personal observation in England as well as his business relations with the English manufacturers, Dr. Witt also saw a certain security against the large new English plants. The men at their head, both as managers and those representing the Government, were very superficially trained in the technical sides of the question. The scientific methods of the German chemists are esteemed so highly by a well-known scientific paper that it recently went so far as to say: 'Bismarck said that the Prussian officer is second to none; we say that the German chemist is ahead of all others.' The future security of our color industry rests upon this fact. Moreover, the German dyestuff factories have for several decades been able to lay aside large money reserves, and have also reduced the book values of their plants to a minimum.

"The greater number of intelligent critics do not, however, agree with such optimistic views. Owing to the fact that he held different opinions, the manager of the dye factory of F. Bayer & Co. proposed an enlarged company, comprising the Badische Anilin & Soda Fabrik, the F. Bayer dye factories and the Aktiengesellschaft fur Anilinfabrikation, the color works of Meister, Lucius & Bruning, Leopold Cassella & Co., and Kalle & Co., as well as the chemical factories which were previously on Weiler-ter-Meer and the Griesheim Electron Chemical Factory.

"The reasons which underlie the proposal for such a trust are as follows: Economic conditions after the war are as yet entirely undetermined. We can, however, see clearly that we are facing real danger. During the war competing firms have arisen everywhere in the neutral and enemy countries. We shall meet competition which, with Government subsidy and protection, will endeavor to dispute the leadership in the world's markets which we have obtained after years of labor and efforts. We must be armed for this fight, and it seems to us that there is no better way of doing this than by an amalgamation of our home industry along the broadest lines. The understanding would thus be principally a defensive one (how much other factors are to enter into the agreement is to be determined later), but it is also to insure the German industry against internal losses as a result of the war. The agreement between the various companies is to last fifty years. The independence and freedom of action of the firms is to be retained in the future in a similar manner as that of our own factory in the past in its relations with the Badische Anilin & Soda Fabrik and the Aktiengesellschaft fur Anilinfabrikation. Close co-operation between the individual firms is proposed and above all a constant exchange of all items of experience in production and manufacture. The negotiations are based upon estimates of profits drawn up uniformly for all. The future profits are to be lumped and apportioned among the various companies according to a previously determined scale. The profits of special products will in the case of certain firms be left out of the common pool during the time of transition.

"The distribution of shares will be as follows:

	Per Cent
Farbwerke Hochst	24.82
Badische Anilin & Soda Fabrik	24.82
Farbenfabrik v. F. Bayer	24.82
Leopold Cassella	9.81
A/G fur Anilinfabrikation (Berlin)	8.08
Chem. Fabrik Griesheim	6.00
Chem. Fabrik Weiler-ter-Meer	1.50

"From the annual statements of the various firms for the year 1917 it is seen that even during that year the various factories made large profits. The Badische Anilin & Soda Fabrik, after writing off 21,213,478 marks, as against 12,369,258 in 1916, and paying all war taxes, had still a clear profit of 30,000,400 marks, as against 23,548,772 in 1916, and, including the balance of 3,249,752 marks, as against 2,893,875 in 1916, a total surplus of 33,251,152 marks, as against 26,442,647 marks in 1916. A dividend of 20 per cent was paid upon a capital of ninety millions of marks. Farbwerke Hochst showed, after writing off 19,161,302 marks, as against 11,011,388 in 1916, and a deduction of 2,663,740 marks, a clear profit of 25,179,968 marks, as against 24,227,445 in 1916, and divided 18 per cent upon a capital of ninety million marks. The Farbenfabrik v. F. Bayer made in 1917, including the balance of 2,957,162 marks, as against 5,363,580 in 1916, a clear profit of 31,084,370 marks, as against 26,760,404 in 1916, and paid a dividend of 20 per cent on a capital of ninety million marks. The Aktiengesellschaft fur Anilinfabrikation shows for the year 1917, after writing off 4,901,000 marks, as against 4,709,400 marks for 1916, and including the last year's balance, a clear profit of 8,931,000 marks, as against 7,308,000 in 1916. Upon a capital of thirty-three millions, 18 per cent was paid in dividends. The Chem. Fabrik Greisheim-Electron paid upon its capital of twenty-five million marks 16 per cent in dividends, as against 16 per cent in 1916 upon a capital of sixteen millions and a bonus of 6 per cent. The Chem. Fabrik Weiler-ter-Meer paid 12 per cent in dividends on a capital of eight million marks, the same as in 1916. Kalle & Co. paid 10 per cent dividends as in 1916.

"These annual statements also contain interesting points which show clearly how the dye factories have more than held their own during the war and promise much for the future. The firm of F. Bayer writes: 'That after the war we will face the most serious difficulties.' The Chem. Fabrik Weiler-ter-Meer acknowledged that many of their activities are entirely based upon the requirements of war, and will have to cease after the war; while, on the other hand, others had to be closed down during the war.

"The following facts should be clearly noted: As a result of the increased production and lack of trained help (the firms mention the increased employment of foreign workmen) the machinery and apparatus became very much worn and deteriorated. The reports emphasize the fact that a long period will be required to repair and renew the worn-out material.

"In order to protect the improvements obtained through science and practice in chemicals, and above all in colors, one well-informed expert suggests that foreign countries should not be given the newest colors for their own use for a long time, but that the German dye manufactories should work hand in hand with the German textile industry and produce finished colored products, the imitation of which, at least for a certain period, would be impossible abroad. If the newly discovered colors are sold abroad and German color experts teach how to employ them, then the German economic gain would be decidedly less than if the entire process were undertaken in Germany. The same expert believes that from ten to fifteen years' schooling will be required by those countries that have started new aniline works before they can arrive at the point where the German industry now stands.

"Dr. N. Grossman believes that even though the German dye industry is facing a serious period, still its future is secure, thanks to the farsightedness of its leaders, who have not merely expended their efforts upon producing dyestuffs, but also upon other products (medicinal and photographic, etc.), and with the problems of nitrogen and the manufacture of synthetic rubber."

GERMAN PROPAGANDA IN THE DYE INDUSTRY

The Germans were clever in military matters. We may as well admit it, now that the war is over. It makes it all the more to our credit in having helped to lick them.

But, if anything, they were even more clever in propaganda work. Take, for instance, dyes. In some mysterious way every clerk selling silks, woolens and cotton goods had been educated to say in an apologetic and deprecatory way:

"Of course, you know we can't guarantee these colors to be fast. The German dyes are off the market. It can't be helped. The American manufacturers of dyes are doing the best they can, but the Germans, you know, were really the only ones that could make fast colors."

And the clerks really believed it. The customers believed it, and everybody assumed there would be no relief until after the war.

Force of necessity played into the German propagandist's hands. It is well known in the dye industry, but not generally understood by the public, that there are dyes designed especially for cotton, for wool, for silk, etc. Owing to the shortage of dye stocks at the beginning of the war, textile manufacturers had to use what they could get. They used dyes intended for wool or silk on cotton fabrics, and vice versa. Result: Fading, crocking, etc. Then, too, they resorted to the use of many of the old-time vegetable dyes discarded years ago in favor of coal-tar products because it was well known they were not fast. Yet these dyes were all the textile men could get in some cases and they had to use them.

Clerks and the public placed all American dyes in the same class. Even what coal-tar dyes our manufacturers did produce at that time were damned by the general classification "American dyes."

What is the situation to-day? Let the figures answer the question.

In 1917 there were 117 firms making intermediates, the amount produced in that year being 322,650,531 pounds, valued at $106,942,918.

In 1917 there were 81 establishments engaged in producing dyestuffs, their output being 45,977,246 pounds of dyes, valued at $57,796,027; and 5,092,558 pounds of color lakes, valued at $2,764,064. The imports of dyestuffs in 1914 were 45,840,966 pounds, almost the same amount as produced in this country in 1917.

In 1914, 2,633,414 pounds of alizarine and alizarine dyes were imported, and in 1918, to date (September), only 29,323 pounds.

In 1914, 3,184,467 pounds of aniline salts were imported and in 1918, to date (September), only 21,273 pounds.

These are but a few of the figures that prove the present satisfactory condition of the American dyestuff industry.

With the knowledge that this has been accomplished in four years, in the face of tremendous difficulties, we may well look forward with confidence to a future in which the greater portion of the obstacles have been overcome.

Reports indicate that the Japanese Government is going to encourage the growth of the dyestuff industry in that country by the adoption of a high protective tariff.

N. A. & C. CO. ISSUES NEW CHROME COLOR SHADE BOOK

Seventy-two dyed samples depicting shades obtained with twenty-one Chrome colors from the plants of the National Aniline & Chemical Company, Inc., make up the new shade book just issued by this concern. Twenty-four of the shades produced are obtained by the orthochrome process, twenty-four by the afterchroming process, and the remaining twenty-four by dyeing on chromed wool. Descriptions of the three processes are included, together with the percentages of dye used to make up the various shades.

The National colors shown include Alizarol Yellow 3G, Alizarol Yellow GW, Alizarol Yellow RW and Alizarol Yellow R; Erie Fast Red FD, Alizarine NAC 20 per cent Paste, Cloth Red G, R and B, Fast Wool Cyanone R and 3R, Serichrome Blue R, Superchrome Blue B Extra, Alizarol Brown RB and GB, Alizarol Brown B, Alizarol Brown 3G, Chrome Green CB, Serichrome Green B, Superchrome Black 6BP, Superchrome Black BN and 4BN, Chrome Black 2BN, Chrome Blue GN Conc. and Chrome Blue 3RYN.

In issuing this Chrome Color Pattern Card, the company offers a range of colors by means of which the dyer can produce practically any shade desired on the classes of fabrics to which chrome colors may suitably be applied. Dyeings obtained with these colors are said to be equal to the most exacting demands in fastness to fulling and light.

DU PONT SUIT ENDED

A four-year suit for control of the stock of E. I. du Pont de Nemours & Company, the powder makers, involving $57,000,000, ended last week.

Judge Buffington, in the United States Circuit Court of Appeals, handed down a lengthy decision sustaining the opinion of former Judge Thompson in the cases.

The decision is a victory for Pierre S. du Pont and members of the powder-making faction of his family.

Judge Buffington suggests that the powder company should bear the costs of the appeal carried to his court. He made no definite order for this, however, and he leaves the question open for discussion by the litigants.

The suit was brought in 1915 to compel Pierre S. du Pont and directors to return to the du Pont Powder Company the $5,000,000 of stock purchased from T. Coleman du Pont. According to the plaintiffs, Pierre S. du Pont and certain directors of the powder company formed the du Pont Securities Company for the purpose of purchasing the stock for their own benefit instead of acquiring it for the benefit of the powder company and its stockholders.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

R. D. Co.—Question—Kindly let us know if Galleine is being manufactured in this country, and if so by whom?

Answer—So far as we have been able to discover, this product has not been made in commercial quantities in this country. The National Aniline & Chemical Company has produced it in limited quantities, also another small concern in Cleveland. We are advised, however, that Gallo

Cyanine colors can be used for practically any purpose for which Galleine is suited, and by using Gallo Cyanine you could be certain of being able to match your shades without difficulty.

F. F. C.—Question—Do you know where we can obtain Sodium Butyrate?

Answer—We have made extensive inquiry and failed to find anyone who is handling this product at the present time. A. Klipstein & Co. used to import it, but abandoned it because of its very objectionable odor and because of the fact that formic acid seemed better suited to the purpose for which Sodium Butyrate was used, namely: plumping hides.

NOTES OF THE TRADE

Fire at the plant of the Stamford (Conn.) Extract Manufacturing Company last week caused damage estimated at $750,000. Between twelve and fifteen buildings were destroyed, and also much valuable machinery, together with considerable amounts of chemicals and dyestuffs.

Announcement has been made that the Atlantic Chemical Company, Boston, has increased its capital from $500,000 to $1,000,000, to provide for general business expansion.

The personnel of the "Trades and Licensing Committee" of the British organization to assist the dyestuff industry of that country consists of the following: Lord Colwyn, chairman; Henry Allen, Milton S. Sharp and Lennox B. Lee, of the Color Users' Committee; T. Taylor, of the National Federation of Associations of Paint, Color and Varnish Manufacturers; J. Turner and Dr. H. Levenstein, representing the British Dyes, Ltd., and Levenstein, Ltd.; W. J. U. Woolcock, representing the Association of British Chemical Manufacturers, and W. H. Dawson, representing the Board of Trade.

After making good the loss to the National Bank of Commerce, Ernesto Madero, president of Madero Bros., Inc., of New York City, has been released from custody on a suspended sentence by Judge McIntyre, of the Court of General Sessions. Tonko L. Millic, general manager of the company, and Nathan Lazarus, a shipping clerk, who were also arrested, were likewise freed. The charge brought by the bank was conspiracy to issue worthless warehouse receipts, on which money was obtained.

The Sackett Turner Corporation, New York, has been incorporated, with a capital of $50,000, to manufacture chemicals and allied specialties. J. Manne, B. Machinist and C. Meyers, 783 Madison Avenue, are the incorporators.

George W. Dunn, who for several years had been associated with the Cronkhite Company, Boston, and who was formerly purchasing agent for the Lancaster Mills, cotton goods, Clinton, Mass., has opened offices at 99 Chauncey Street, Boston, where he will conduct a general business in dyes, chemicals and textile mill supplies.

Foreign trade as a factor in stabilizing American industry will be the principal subject considered at the forthcoming meeting of the National Foreign Trade Council, to be held at the Congress Hotel, Chicago, on Thursday, Friday and Saturday, April 24, 25 and 26. The gathering will be the sixth annual affair of its kind, and will also take up the question of forming a definite policy dealing with the future of the new shipping of the United States.

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PRYING INTO PRICES

Deadlock Between Consumers, Who Are Waiting for "Something to Drop," and Dye Brethren, Who Say They'll Continue to Wait, Results in Business Stagnation

LETHARGIC encephalitis is the imposing term employed by a voluble medical profession to designate the new "sleeping sickness" which is at present engaging the preventive efforts of various municipal health departments. Following upon the heels of the "flu," this malady, although by no means so dangerous to human life, has already resulted in several fatalities in England and this country. The inability to fight off an increasing drowsiness ten hours after the disease has been contracted, with ensuing coma from which the patient sometimes never awakens, are its salient characteristics. The physicians say it is infectious. It may, then, originate from the one and only American dye industry.

Certain it is that the industry was bitten by a micro-organism of some such description a month or two ago. And if the human indisposition is anything like as "catching" as that which has infected the dye trade, vaccinations should be in order before long.

But herein lies another difficulty. The germ, or "bug," which is responsible for the introduction of *encephalitis lethargica* into our innards has not been isolated, and consequently no specific vaccine for its destruction can be made. The big research foundations like the Rockefeller Institute are already hard at work, but there is no telling what the outcome will be. Fortunately the trade bacillus is not so difficult of recognition; yet its corresponding anti-toxin, Time, is, after all, the only sure agent for its eradication. It is to be fervently hoped that too long an application will not, in the present case, be necessary, otherwise unforeseen hardships will beset the dye industry and its development to the point dreamed of in 1914 considerably retarded.

The consumers of dyestuffs are not buying, at present, any more than just enough to keep going with. Business, for the dye manufacturers, is dead slow and confined to a few small sales and dreams of better days to come. The lethargy in which the trade seems steeped has endured for more than two months, and whether it is on the increase or on the decrease would be extremely difficult to say at the moment of writing. Opinions in the trade seem to be about equally divided between these two possibilities, with perhaps a rather pessimistic view of things enveloping the whole, and a general inclination to indulge in the worst possible interpretation of the outlook. But there; we are talking now like a market report!

Labor troubles, when all is said and done, seem to be the chief cause for the stagnation. These have bred a feeling of uncertainty; the mills are not taking any chances on buying dyestuffs at the prevailing prices while they face the prospect of shut-downs. It is evident that they still cling to the hope that another month or two will see the figures of to-day considerably reduced, and naturally they object to stocking up with dyes which they feel certain can be purchased cheaper after the present unrest has vanished. Likewise, this business lethargy has spread and taken hold all along the line, and many mills to-day are facing the prospect of idleness simply because they cannot get orders. The jobbers, who also look for lower prices, will not buy of the mill agents, and so it goes merrily 'round the circle--and nobody is very happy.

Coupled with this, however, is a feeling of resentment against the dye industry in general which has no business to exist. That ephemeral but necessary element of trade known as goodwill is widely lacking in the case of the dye manufacturer. Its importance as a factor in the stimulation of business is not always paramount, but in the present case it is playing a role of unwarranted proportions. A mill agent recently commented on this phase of the situation by saying that his mills felt that the dye manufacturers were indulging in profiteering at the expense of the textile industries. "They tell us," said he, "that they are obliged to charge such high prices because of the heavy investments for plant and equipment necessary to begin the manufacture of dyes in commercial quantities in this country. Well, we're willing to agree that great investments were necessary, but it is my belief that most of them recovered the cost of their plant and equipment—yes, and of research also—after the first year of operation. I am not a dye manufacturer, but I don't see why such high prices should continue. You can't make me believe it's wholly imperative. It looks as though they were trying to take advantage of a good thing.

"It may be that I don't know what I'm talking about," he went on, "but even supposing they hadn't recovered their money until the end of the second year—what then? Are their overhead charges and raw materials still so high that there can be practically no change for the better? And while on the subject of raw materials, what's all this talk about great quantities of intermediates released by the Government for the use of private enterprise? That ought to make a difference, it seems to me. Anyway, we have no intention of buying any more now than we have to. Business is slow enough, and it would be foolish to buy dyes now which we can probably get later for maybe a third less."

It really looks like a deadlock. Both sides are playing a waiting game. In justice to the dye industry, it must be stated that the situation in that quarter is not quite as the mill man saw it. In the first place, dye prices will not come down radically until some of the present quantities on hand, made at greater expense than those to-day, have been disposed of. These adjustments take time, and the textile people will do well to bear in mind that the dye manufacturers are not so blind as to incur hostility by charging fancy prices for their products without some good reason for it. From the standpoint of material assistance and good will, the manufacturer has had many favors shown him; from the standpoint of moral backing and that indefinable commercial atmosphere which crystallizes in the form of kindly words and good-natured tolerance he has also had his share, but of late days this factor has swung the other way, so that he now gets the worst of it in a majority of cases.

The textile interests must likewise bear in mind that in undertaking to do in four years what the Germans spent forty in accomplishing, much money was wasted in the erection of plant which afterward had to be abandoned. This was due to the fact that the American manufacturers tackled a proposition which is normally expected to require years of research and many experimental buildings. They took enormous risks and, being human, did not feel quite safe until they began to see a balance on the right side of the ledger. Another factor which contributed to the high prices charged was the fly-by-night, wildcat "manufacturer" who, perhaps, left his job as janitor somewhere, rented a ramshackle barn, and started business with all the *savoir faire* of a Schwab or a Guggenheim acquiring a million-dollar plant. This individual, drawn by the lure of the chemical market quotations, began producing a few pounds of dyestuffs which the Germans had been selling for fifteen to twenty cents. He sold them in terms of dollars, which he was enabled to do by the great need existing and the willingness of the consumers to pay unheard-of prices in order to keep going at all. But inasmuch as the Germans' ability to sell at such a low figure depended almost wholly upon the fact that they made dyes in enormous quantities, and as our friend was producing only infinitesimal quantities, the answer is apparent that it would not take much of a slump in prices to drive him out of business simply because he could never hope to manufacture any cheaper without the capital to start large-scale operations. Another and only too well-known cause of much hard feeling was, of course, the dye "gyp" of unsavory memory. This type is now practically out of existence, and few of the other remain. For such as still linger, the death-knell has been sounded. Finally, it must be remembered that much of the capital wrung by "extortion" from the hapless consumer has, in the case of legitimate dye-manufacturing enterprises, gone straight back to into the business with a view to building it up to a still greater point of efficiency and permanency, and that there still remain some dyes manufactured under less favorable conditions on which brokers and manufacturers now holding them are unwilling to take a loss, if it can be avoided, and which must be disposed of before the situation can be eased up.

Both sides, then, are engaged in trying to "out-sit" the other fellow. It may be in the end that the dye manufacturers will have to take some losses; from present indications it would seem not improbable, but it is unlikely that

(*Continued on page 9.*)

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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

FOREIGN REFUSAL OF IMPORT LICENSES

The letter reprinted below was received by the British branch of a large American dyestuff manufacturing company from the British Board of Trade in response to their request for permission to bring into England certain German dyestuffs which had been purchased before the war but which are now lying in Holland awaiting disposition. The interesting part of the letter is not so much the refusal of the Board of Trade to consider the importation of goods of enemy origin as the second paragraph, which states that it is now proposed to prohibit the importation of *all* dyestuffs into England for a period or ten years after conclusion of peace.

The letter in question follows:
Board of Trade, London.
February 6, 1919.
Gentlemen:

With reference to your letter of the 28th January, I am directed by the Board of Trade to state that for the present, the existing regulations regarding the import of goods of enemy origin remain in force.

Further, as will be observed from White paper Cd. 9194 and from the notice in the Board of Trade Journal of the 16th January, 1919 (page 66), it is proposed to prohibit the importation of all dyestuffs into this country for a period of ten years after the conclusion of peace.

In these circumstances it is at present not possible to consider your application to import the quantities of dyestuffs of German origin specified by you, and it is suggested that you should renew your application when the arrangements for administering the latter prohibition are complete.

I am, Gentlemen,

From this attitude of the British Board of Trade, which in effect is the active head of the British Licensing Commission, it can be clearly seen that Britain does not purpose to allow her dyestuff manufacturing industry to be interfered with in any extent by foreign competition—whether of enemy, neutral or ally origin. We further understand that very much the same precautions are being taken by France, and so far as Italy is concerned it is extremely difficult to obtain import licenses for American dyestuffs, although we believe that the Swiss and English goods are moving freely across the Italian border.

In view of all these circumstances, is it not self-evident that the United States ought, without delay, to take similar protective measures? As matters now stand, our markets are open, subject to the payment of what is only a mildly protective duty, to the products of all the world, without discrimination, whereas our own products are excluded from many of the world's most desirable markets.

We have discussed the proposed Licensing Commission in these columns so thoroughly that we believe all readers of the REPORTER must now be familiar with the essential features of the proposed legislation. To our way of thinking there is no argument against its adoption which in any way counterbalances the obvious benefits which would be derived. One of the largest domestic consumers, when asked recently by a representative of the REPORTER for his opinion as to the likelihood of the adoption of an American Licensing Board, said: "They'll never get it." When asked for his reason for this statement, he replied: "It's too good to be true." If there is no stronger argument for refusing to adopt this legislation we feel that our legislators must be exceedingly lacking in common sense if they fail to pass the necessary enactments.

PRYING INTO PRICES

(*Continued from page 7.*)

these will be greater than they can survive. The more effective tariff which should be coming along sometime next summer, will be a slight aid, but the real solution to the problem, the most desirable specific for the elimination of the lethargy-producing germ, would appear to be the speedy enactment of legislation for the creation of a dye-licensing board. This would effectually take care of the price question and thereby stimulate trade.

For instance, let us assume for the moment that Hectic Scarlet NG (fast to washing, shaving, light, darkness and earthquakes) is an exceedingly useful and valuable dyestuff, and that the consumers of this country simply can't be happy without a hundred pounds of it each year. The International du This de Lighted Company, Inc., of New York, is making fifty pounds a year and getting $3.50 a pound. At the same time, Dundreary, Ltd., of Huddersfield, is making it and selling for $3.00 a pound. What happens? The licensing board buys fifty pounds from the New York concern at $3.50 and fifty pounds from the Huddersfield concern at $3.00, and sells the hundred pounds to American consumers at $3.50 a pound. But as soon as it becomes apparent that the facilities of the New York concern are such that they can make this dye for $3.00 per pound, the protection of the licensing board is withdrawn so far as this dyestuff is concerned, and the two companies can then fight it out on their respective merits. By the time the New York people were making a hundred pounds a year (remember, we are dealing in small figures for purposes of illustration only) it might well be that they could successfully compete in price with the English manufacturer.

The licensing board, then, would give the industry the slightly longer delay it needs in order to become firmly established, and in this way would benefit the consumers just as much in the long run, by assuring them a steady supply of needed colors at reasonable prices.

With a capital of $1,000,000, the Mechanical and Chemical Equipment Company has been incorporated under the laws of Delaware to deal in machinery and general equipment for the chemical trades. The incorporators consist of Herbert E. Lotter, P. B. Drew and C. L. Rimlinger, of Wilmington, that State.

DYE INDUSTRY NEEDS SAFEGUARDS

By William Smith Culbertson
Member United States Tariff Commission

No more interesting industrial development can be found than the growth of the American dye industry under the protection afforded by the isolation of Germany. The British blockade and other war conditions have permitted the American dye industry to develop from almost nothing to the position of an important industry. The production of coal-tar chemicals during 1917, exclusive of explosives and synthetic phenolic resins, was 54,550,107 pounds, valued at $68,790,856.

The Tariff Commission, whose investigations into the coal-tar industries have been under the able direction of Dr. Grinnell Jones, its chemical expert, has pointed out the stages through which the industry has passed. The first period was from August 4, 1914, to March 19, 1915. This covered the period from the beginning of the European war to the cessation of imports from Germany. While during this period the dependence of this country on Germany for dyes was brought forcefully to our attention, we were still able to obtain, through arrangements with the British Government, shipments of dyes from Germany, in return for which we paid in cargoes of cotton. The last direct shipment from Germany was received in this country on March 19, 1915.

The second period—that of famine—extended from this time to the passage by Congress of the dyestuffs law on September 8, 1916. During this period conditions became steadily worse, the textile mills endeavoring to economize in every way. The use of natural, as distinguished from artificial, dyes was revived. The unprecedented prices called forth supplies of dyes, particularly indigo, from such countries as China, Japan, Hong Kong, British India and Salvador. The submarine Deutschland arrived in July, 1916, bringing a cargo of dyes much needed in this country.

During this period American manufacturers began to meet the situation. The manufacture of intermediates began and American dye factories extended their productive capacity.

The third period extended from the passage of the dyestuffs tariff act until the United States entered the war on April 6, 1917. This period was characterized by a steadily increasing output of dyes both in quantity and variety. The tariff law accomplished its purpose in encouraging capital to invest in the industry, particularly in the textile industry, was relieved.

The fourth period extended from April 6, 1917, until the signing of the armistice. The demands of the army for khaki uniforms created a large demand for dyes suitable for this purpose and there was a corresponding decrease in civilian demands. A large portion of the American textile mills were engaged in Government contracts. Many raw materials essential to the production of dyes were taken over by other war industries thereby restricting the production of certain important dyes.

A new period in the development of this industry has come since the signing of the armistice, during which time there has been an effort on the part of the industry to adjust itself to normal conditions and to prepare itself to meet foreign competition.* All restrictions on the use of raw materials and of steel for plant construction have disappeared and prices on raw materials have been falling.

SITUATION IN BRITAIN

A similar development in the dye industry has taken place in Great Britain. It is there considered as an essential industry and definite steps have been taken to make the British consumer "independent of German dyestuffs."† This is being accomplished by means of loans and grants in aid of buildings, plants and research. The British Board of Trade states that it is not the object of this plan to assist financially the formation or development of any dye-making business in the interests of the business as such but that it is recognized that the development of the manufacture of dyes is desirable from a national standpoint.

Under the proposed plan no dyes are to be imported into Great Britain without special licenses. A trade and licensing committee are to determine what colors and intermediates shall be licensed for import and it is to be presumed that licenses will be refused in the case of all dyes which are being manufactured in Great Britain in quantities sufficient to supply the British consumer.

In the United States the tariff has thus far been the means adopted for developing and protecting the dye industry. The Tariff Commission has published a report suggesting amendments to the dyestuffs tariff act of 1916 which will make more effective the presumable intent of Congress.‡ It was not the purpose of the Tariff Commission in this report to advise whether or not the rates of duty in that law are adequate for the protection of the American dye industry. This is still an open question and involves a matter of policy which Congress will, no doubt, be called upon to consider.

When tariff matters come up for consideration in Congress no doubt the first industries to be considered are those which are commonly referred to as essential or key industries. To these may be added certain industries which have been seriously disturbed by the war or which have sprung up for the first time in the United States since the outbreak of the war. Among the most important of the essential or key industries is the one producing intermediates and coal-tar dyes. It is closely related to the question of military preparedness and is also essential in the successful maintenance of the textile and other industries.

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* United States Tariff Commission, "Census of Dyes and Coal-Tar Chemicals, 1917." † British Blue Book, Cd. 9194 (1918). ‡ United States Tariff Commission, "Dyes and Other Coal-Tar Chemicals."

National policy would seem to require the protection of the coal-tar dye industry. In the first place it should be protected from such unfair practices as commercial bribery and full line forcing. When these unfair practices are carried on in the United States, the provisions against unfair methods of competition in the Federal Trade Commission Act are operative.

In all cases where the parties can be reached, the Federal Trade Commission has adequate powers for the protection of the American dye as well as other industries. These unfair practices, however, may be carried on by parties outside the jurisdiction of the United States and some further provision of law would be necessary. Section 802 of the Act of Congress of September 8, 1916, provided for the levying of a special duty in order to prevent the practice of full line forcing. It provided that if any article produced in a foreign country was imported into the United States under any agreement that any person in the United States should not use or purchase the article of any other person the duty ordinarily assessed on that article should be doubled.

MUST PREVENT DUMPING

At the same time Congress enacted a law against unfair price cutting done with the intent of destroying, injuring or preventing the establishment of an industry in the United States. This provision against dumping is inadequate both as to substance and procedure. The law makes such a practice a criminal offense, and although this may be retained, some Federal Commission should be given power ta prevent dumping in the same manner that the Federal Trade Commission prevents unfair methods of competition within the country.

The law should also extend not merely to intentional cases of price cutting but to all those forms of dumping which result in the unfair injury to American industry. It makes no difference to an American manufacturer when he is injured whether it was done intentionally or not.

Finally, Congress will be called upon to consider whether the present rates of duty on intermediates and coal-tar dyes are properly adjusted and whether they are in amount sufficient to equalize the conditions of competition between this country and foreign competitors.—*Annual Chemical Supplement, Journal of Commerce.*

MEDIAEVAL PIGMENTS

By Professor A. P. Laurie

At a meeting of the London Section of the Society of Dyers and Colourists, England, held toward the close of 1918 at the Leathersellers' College, the following paper, which in abstract form is herewith reproduced from the *Journal of the Society of Dyers and Colourists,* its official organ. The subject was viewed historically, rather than from the standpoint of chemical detail:

The early Egyptian pigments used for wall decorations and for painting on mummy cases were limited, being principally red and yellow ochre, white, black, Egyptian green and Egyptian blue, the two latter being peculiar to Egypt and very interesting. The blue was first discovered about 2000 B. C., but all trace of it was lost between the 2d and 7th centuries, its disappearance being associated with the Mohammedan invasion. It has been subject matter for research by many scientists, including Sir Humphry Davy and Dr. Russell. Prof. Laurie has himself prepared crystals of Egyptian blue, and finally determined the exact conditions for its preparation. There is only one very imperfect recipe, mentioned by Vitruvius, which has been handed down, viz., the heating together of copper or copper ore, sand, soda and lime in a furnace. The lecturer stated that the temperature must be kept within a range between 800 deg. and 900 deg. C. for about twenty hours when a double silicate of copper and calcium crystallizes out, which can be separated by grinding and washing the grit formed, giving the Egyptian blue. It is very remarkable that the Egyptians were able to do this. This was the blue of the Roman Empire, and it can only be prepared under such conditions. If the temperature reaches 900 deg. or higher, a green pigment is obtained which was used in Egypt at the same time, and is frequently found on their wall and mummy paintings.

The next blue of interest is the ultramarine blue prepared by grinding lapis-lazuli into a fine powder, mixing with oil and resin until a doughy mass is formed, and kneading under water made slightly alkaline, when the ultramarine separates out. A very imperfect ultramarine was used in the Byzantine days; it was not until the 12th century that it reached perfection.

Other Byzantine pigments were a purple made from the *Murex Branderis,* a species of shellfish, which was used for the Imperial robes, and malachite green, red lead and vermilion and orpiment.

In early Irish manuscripts (9th century) there is a purple prepared from *Purpura Capillus,* a shellfish found on the Irish coasts, badly prepared ultramarine, a special variety of orpiment.

malachite green, and red lead, corresponding exactly to the Byzantine palette, and pointing to the probability that Greek monks first introduced Christianity into Ireland.

The examination of pigments on illuminated manuscripts and pictures is done as follows: The first difficulty is in obtaining a sample, especially in the case of illuminated manuscripts. The best procedure is to remove a small piece of pigment by the aid of a fine hypodermic needle, made sticky with a weak solution of Canada balsam. It is possible to remove a little of the pigment wtihout leaving any trace on the manuscript. High stereoscopic magnifying glasses should be used, ground flat and mounted with a central wire like a miniature cork borer. In the case of a section, a hypodermic needle is again used, and the pigment embedded in paraffin wax, and sections cut in the usual way.

The identification of pigments is comparatively easy from a chemical standpoint by applying tests which give a change of colour without dissolving the pigment. In the case of an oil picture, it is not necessary to remove the oil, as any chemical agent acts through the oil film.

Early Italian pictures are painted with egg, and the later ones with oil, as a medium. Egg pictures are traced up to the 15th century, succeeded by an intermediary period in which the most permanent pictures have been painted by Flemish artists Van Eyk, etc., who probably used egg and oil varnish mixed together with much better results.

A very beautiful transparent green pigment was used as early as the 8th century, which was later entirely lost sight of, but reappeared in the 15th century, when it was used by Flemish painters. The first recipe published is not found until the 17th century, by Dr. Mayerne. This green is a solution of verdigris in a pine balsam.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

H. A. R.—Question—What is the basis of the formation of colored lakes on the fiber in calico printing?

Answer—This is the result of the mutual reaction between the fiber, mordant and dyestuff. The final result is a colloidal coloring matter, in which the colloidal alumina deposited in the fiber plays the most important part.

W. U. S.—Question—Can you inform us as to the composition of Ultramarine from a purely chemical standpoint?

Answer—It is regarded as a sodio-aluminic silicate, united either with a polysulphide of sodium or with a polysulphide and polythionate. It is usually expressed by the following formula:

$$2Na^2AL^2Si^2O^8Na^2S^2$$

C. S. M.—Question—Kindly inform us what acid or acids may be employed for the manufacture of condensation products of formaldehyde and primary amines, for use in the preparation of azo-dyes.

Answer—Dilute aqueous acids may be used such as sulphuric or hydrochloric. The temperature should be at the boiling point. When the bases are diazotized and developed on the fiber, red, claret, khaki and yellow shades are produced, which are fast to washing and acids.

FAIRBANKS & DORR BECOMES DORR WOOLEN COMPANY

An announcement has been issued informing the trade of the incorporation of a concern to be known as the Dorr Woolen Company, which will take the place of Fairbanks & Dorr, proprietors of the Granite State Mills and manufacturers of shirtings and dress goods. The new concern has for its president George A. Dorr, who conducted the business under the former name, and for its vice-president Roy L. Dorr. The corporation has acquired the plant and all the assets of Fairbanks & Dorr.

The factory operation and management will be, as formerly, under the direct supervision of George A. Dorr, while Roy L. Dorr will continue in his capacity of New York selling agent. The announcement further states that customers of the Dorr Woolen Company will receive the same service and personal attention that they received when the business was carried on under the name of Fairbanks & Dorr. The home office and factory of the corporation are located at Guild, N. H., while the New York office is at 43 Leonard Street, that city.

NOTES OF THE TRADE

The Southeastern Dyestuff Company, Atlanta, Ga., has been incorporated, with a capital of $25,000, to manufacture dyestuffs and kindred specialties. William A. Parsons is the principal incorporator.

After several years with the United States Finishing Company, and later with the St. Louis branch of the Lowell Bleachery, William D. McNair has resigned his post to become overseer of dyeing for the Bronx Company, New York City.

Bright direct cotton colors, ranging from lemon to red orange, rose, violet, browns, scarlets and blues, together with a series of colors developed from primuline, are shown in a new shade book recently issued by the Sterling Color Company, of New York City.

License to use seven dye patents which they claim are enemy-owned or controlled have been applied for by the Consolidated Color & Chemical Company, New York City. The Federal Trade Commission is considering the applications.

The Swiss hold that Germany has in the past practised illegal competition and undersold the home dye industry, and hence are preparing to close Swiss markets as much as possible against the Germans and in favor of dyes manufactured by the Allies.

Harrisons, Inc., the well-known subsidiary of E. I. du Pont de Nemours & Co., Inc., is constructing a 50 x 100 three-story addition to its chemical manufacturing plant at Thirty-fifth Street and Gray's Ferry Avenue, Philadelphia, to provide for increased capacity.

F. A. Reichard, Inc., New York, has been incorporated, with a capital of $100,000, to manufacture chemicals, colors and allied products. J. W. Bossert, A. P. De Marmon and G. Barritt, New York, are the incorporators.

The Mallinckrodt Chemical Works, New York, has recently completed negotiations for the purchase of the two five-story buildings at 15 Gold Street and 22-24 Platt Street.

Eimer & Amend, manufacturers of chemicals, have had plans made for alterations and improvements in their plant at Newark, N. J.

John D. Lawson & Co., Inc., New York, have been incorporated, with a capital of $40,000, to engage in the manufacture of chemicals, essential and vegetable oils, etc. The incorporators are L. S. Holmes and J. D. Lawson, 14 Cliff Street, and T. L. Green, 165 Broadway, that city.

The North American Dye Corporation, Mount Vernon, N. Y., is having plans prepared for alterations and improvements in its two-story brick plant to facilitate operations.

The net earnings of the Butterworth-Judson Corporation for the year ending December 31, 1918, after deducting taxes and depreciation charges, was $845,597, as against $1,468,683 for 1917.

AMERICAN DYESTUFF REPORTER

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The Future of the American Dye Industry

By W. H. Nichols

New Fall Color Card

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DYESTUFF REPORTER

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"Circulated Everywhere Dyestuffs are Used"

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Alles iſt vorüber!

Incorporation of the Chemical Foundation Alters Entire Outlook for American Dye Industry and Sounds Death Knell of German "Ring"

OTTO VON ZORNGLUHEND, Uber-praesident of the Inzwischenausgeschlagen Gesellschaft fur Farbenstoffen Zuzammengesetzen, whose gigantic dye and chemical works have for generations added to the scenic grandeur of the off bank of the Rhine, gazed out of the plate glass window of his office and swore dismally. There was no mistaking the fact that Otto was extremely unhappy. Honest, Teutonic tears stood in his soulful blue eyes and tiny beads of perspiration ringed his somewhat pear-shaped forehead. Indeed, so far in the depths of despondency was he that the entrance at that moment of his cousin and partner, Fritz von Anilinsodakrafts, with a pint of lager, failed utterly to stir him to his customary raptures.

Sensing that something was wrong, Fritz set the delectable scuttle down on the mahogany desk and crossed the room.

"Was ist los, Otto?" he inquired.

"Heil'ges Rauch! Dose schweinhunden, die Amerikanner!"

"Gewiss, gewiss! But vot aboudt-'em? Vot now iss it?"

Otto groaned. "Ach, der inzult of it! Mein Gott, vot an inzult!"

"Dey haf raised der tariff on dyestoffs, maybe?"

"Vorse as dot; much vorse."

The other paled. "Donner und blitzen! You don'd mean to tell me, den, dot it's a licensing-kommission?"

"Vorse, I tell you! Here—read dot!" And thrusting into his cousin's hand the latest copy of the *German Dyestuff Informer,* Otto laid his head wearily on both arms and abandoned himself to his emotion.

With dropping jaw, and knees which shook until they threatened to give under him, Fritz saw blazoned across the first page, in the *Informer's* characteristic style, the heading:

GERMANS CHECKMATED

Nothing but Trouble for Dye Ring Found in Chemical Foundation Resulting from Sale of German-Owned Patents by the American Aliens'-Property-Custodian-of.

ALL of North America is now laughing over the most-recently-perpetrated outrage against the Fatherland. Not satisfied, apparently, with the vicious propaganda which has been malignantly leveled in the United States against our faithful servants who were engaged in educating those ignorant foreigners up to the true meaning of our glorious Kultur, nor with their insane attempts to raise their tariff which might help to deprive them of the chance to use our dyes and chemicals, the shortsighted Yankees have organized what they call "The Chemical Foundation, Inc.," which has purchased from their Aliens'-Property-Custodian-of, A. Mitchell Palmer, 4,500 chemical and dye patents originally granted in that country to Germans.

This is most serious, for these patents, which represent the life-achievements of some of our best brains and talent, were stolen—yes, literally stolen!—from us when the United States decided to attack us, along with Belgium, France, Italy and England. Of course, we never intended to manufacture in the United States any of the substances described in these patents; that would have been fatal to our policy of preventing the great dye industry from falling into unskillful hands, but they were very useful to keep France and England from sending any of these dyes into America, thereby preserving the market for our German manufacturers.

But now that they have been transferred to the hands of the ignorant Yankees, do the dye makers of the Fatherland fully realize just what it means to them? It means this: That the next time we try to send into America any of these products, the American manufacturers can actually prosecute us for infringement of the very patents which we created ourselves! And, with their low, vulgar ideas of wit, they are calling upon one another to perceive the terrific humor of a situation which is in reality one of the most tragic—to us—since Belgium sought to overthrow us by her attack-without-warning.

As long as Germans owned these patents, the Americans could not manufacture these dyes and chemicals; neither could they import from any country save only from the rightful controller-of-world-markets, Germany. But when the Aliens'-Property-Custodian-of, trying to injure and thwart our plans for world-benefiting, seized these patents, what did he do with them? Turn them back after America capitulated to our unbeaten armies? No; his evil thoughts conceived a way by which Americans might be deprived of the advantages of securing the genuine goods, made in Germany, and he went to the American Dyes Institute and the American Manufacturing Chemists' Association, two organizations also concerned with the overthrow of the good old-fashioned system of strangling competition among upstarts, and the result was this "Chemical Foundation, Inc." The capital of the corporation is $500,000, of which $250,000 was paid for the patents and $250,000 retained as a working capital to further their perfidious ends. Practically every American manufacturer of chemicals will be a stockholder, with the avowed intention of, as they say, "holding the patents as a trustee for American industry, for the Americanization of such institutions as may be affected thereby, for the exclusion or elimination of alien interests hostile or detrimental to the said industries, and for the advancement of chemical and allied science and industry in the United States." Frightful!

The voting stock of the corporation is to be placed in a voting trust of which the trustees are to be the five men who for months were shamelessly engaged in approving the sales of the various German companies whose properties were stolen from us. They are: George L. Ingraham, former Presiding Justice of the Appellate Division, First Department, New York (U. S. A.) Supreme Court; Otto T. Bannard, president of the New York Trust Company; Cleveland H. Dodge, Benjamin H. Griswold, senior partner of Brown Bros., bankers of Philadelphia (a city in the State of Pennsylvania, U. S. A.), and Ralph Stone, president of the Detroit (U. S. A.) Trust Company. The first president of the corporation will be Francis P. Garvan, whose nefarious efforts to assist and aid the unspeakable program of the Aliens'-Property-Custodian-of have been highly praised by the latter, and who has now succeeded him to that dishonorable post.

Mr. Palmer is quoted as saying, with regard to the organization which he has created: "Two hundred and fifty thousand dollars has been provided for working capital so that the company may be able to commence immediately and prosecute with the utmost vigor infringement proceedings whenever the first German attempt shall hereafter be made to import into this country." (The U. S. A.)

The charter of the corporation is so framed that under the patents nonexclusive licenses only can be granted on equal terms to all proper applicants, and must be granted to the United States free of cost. Of the $500,000 capital, $400,000 is to be 6 per cent cumulative preferred stock and $100,000 common stock, also limited to 6 per cent dividends. The charter further provides that surplus income is to be used for the retirement of the preferred stock, and thereafter for the advancement of chemical and allied science and industry.

Mr. Palmer further says: "The price paid for the patents was necessarily determined somewhat arbitrarily; the great majority of the patents were presumably valueless. The value of the remainder was entirely problematical and impossible to estimate. Substantially the entire industry having combined for the purpose of this purchase, it would have been impossible on public sale to find as a bidder any legitimate manufacturer. No other bidder could, therefore, have been found on public sale except some speculative individual who might have bought them for purposes practically amounting to commercial blackmail. The combination was not objectionable to public policy, since it was so organized that any genuine American, whether a stockholder in the company or not, could secure the benefits of the patents on fair and equal terms."

The editorial staff of the *Informer* regrets to opine that the organization of the Chemical Foundation constitutes the most important step yet taken by the Americans for the protection of their dye and chemical industry. Our own industry, here in Germany, has had so much to gain by extending its foreign trade and by destroying the industry in other countries that it would undoubtedly give away its products for nothing in the United States of North America in order to recover the American market. This is as it should be, but we fear that the Chemical Foundation will prove a power sufficient to discourage many attempts in this direction on the part of our German manufacturers.

In the case of our new dyes, which we have worked out and perfected during the war which was forced upon us, it will prove well-nigh fatal, for the introduction of new classes of dyestuffs requires at least a year or so after the patents have been granted on the inventions on which their manufacture depends. The more recently produced dyes of to-day are the outcome of patents granted three or four years ago, and the patents transferred to the Chemical Foundation include many of our German patents of 1917 and even of 1918, as well as many applications still pending. These patents, therefore, include the results of the research upon which is based the manufacture of dyes which we are now able to produce and market. Accordingly, at the very least the Chemical Foundation will be able to protect the American dye industry for a considerable period of time.

According to Mr. Palmer, it appears to be the universal view of the more competent manufacturers of the United States that, given five years of freedom from German competition, the American industry can hold its own. "Probably," he continues, "only a measure such as the embargo which appears to have been imposed by the British and French against all foreign dye importations can furnish this protection to the degree necessary to insure the safety of the American industry; but short of such an embargo, the Chemical Foundation would seem to furnish all the aid that possibly can be given.

"At the same time," he concludes, "the new institution promises an incalculable benefit, not only to the dye and chemical industries, but to the whole American manufacturing world. The opportunities which it can offer and the rewards which it can hold out to competent research scientists should far exceed those of any institution unconnected with the industry, and it may well, therefore, form the nucleus of the greatest research organization in the country."

The *Informer* recognizes the fact that within the past few days a distinct change has come over the aspect of the American situation as regards our reconquest of those markets in the dye and chemical fieid. Six or eight months ago, the greatest obstacle that we had to fear was the possible raising of the tariff schedule provided for in the Act of September 8, 1914—a mere nothing! Later on came the talk of creating a licensing commission similar to the ones already in force in France and England. We knew that they could do this and as a result could afford to forget the tariff, practically speaking, for it would have made little difference to us whether the latter was high or low when we could not import our dyes anyway. But there seemed to be some hope that some members of the incoming Sixty-sixth American Congress would be sufficiently considerate of our interests to oppose this measure and possibly defeat it in the event that it was introduced. Now, however, it seems to make NO difference at all whether the Congress ever meets again; there is no getting around the fact that we have been checkmated, completely, utterly and irrevocably, and furthermore with a not-to-be-controverted entirety, with a unanimity and a homogeneity, so to speak, which bids fair to become absolute, and which means, in plain language, that so far as again entering American dye markets is concerned, *alles ist voruber!*

When Fritz had finished reading, he put down the magazine and slowly raised his eyes. "But—but—" he began. But his cousin Otto and the lager had both disappeared.

INCREASED USE OF AMERICAN DYESTUFFS IN JAPAN

American dyestuffs are gaining a hold on the Japanese market, which has heretofore been dominated by German products exported through neutral countries. Imports of dyestuffs into Japan for the first three months of 1918 totaled 482,981 pounds, valued at $1,580,566. Of this amount 193,342 pounds, valued at $787,007, was received from Germany, and 13,242 pounds, valued at $31,034, from Switzerland. Although the trade with the United States has not reached sufficient proportions to warrant special notice in the official tables, where it is still classed under "other countries," we learn upon good authority that the greater share of the unclassified trade is with America.

Shipping facilities have become a large factor in the dyestuff trade in Japan, and, whereas American deliveries were formerly regarded with a degree of certainty, the decreased trans-Pacific tonnage has threatened the supply. Prices are subsequently soaring; American dyestuffs range from $83 to $479 per 100 pounds, and Japanese-made stuffs are even higher, ranging from $100 to $750.

With the entrance of Japan as a permanent factor in the manufacture of cotton and silk piece goods, the importance of finding an outlet there for the overproduction in the American dyestuff industry, which is bound to follow the war, can not be overemphasized.—*Commerce Reports.*

The capital of the Lehigh Silk Hosiery Mills, New York, has been increased from $50,000 to $200,000.

AMERICAN DYESTUFF REPORTER
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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

GRAFT

We are informed by the War Trade Board that the evidence gathered by their agents who have been investigating commercial bribery in the dyestuff field is nearing completion in several cases and that in the near future we may expect prosecutions and probable convictions. Such action cannot come too soon. We have repeatedly pointed out in these pages the very harmful effects of this practice upon our domestic dyestuff industry, and continue to believe that the only way to correct it is aggressive governmental action coupled with unsparing publicity. We sincerely hope that those manufacturers or dealers who have countenanced this practice in the past will abandon it before being compelled to do so by the Washington authorities. If they will do this they will save themselves not only humiliation but very considerable penalties as well.

FROM "RYE" STUFFS TO DYESTUFFS

We have all become familiar with the expression "From die stuffs to dyestuffs," signifying the easy transition possible from the manufacture of explosives to the manufacture of synthetic colors. Another aspect of the industry has, for the second time, become apparent from the announcement of the Hydrocarbon Chemical Products Company, Inc., of Cardington, Pa., to the effect that it has purchased the five-acre property of the Kelly Distillery Company, of Wilmington, Del. This property is located at Lancaster, Pa., and main distillery buildings, fully equipped, three warehouses and two dwelling houses. Steam, water and power are installed, and the plant is undergoing changes which will enable it to begin part operation by the middle of next month.

It will be devoted to increased production of the present products of the company, which include fuchsine basic crystals, acid fuchsine, cerise, maroon, rosaniline, aniline blue, soluble aniline blue, alkali blue and reflex blue. Particular attention will be paid to the production of the various blues, but plans have been drawn for the erection of additional buildings to manufacture malachite green crystals, emerald green and patent blue. About forty-five men are employed. The main offices of the company will shortly be moved to Lancaster.

NEW FALL COLOR CARD INCLUDES TEN WOOL SHADES

The progress made during the past four years in the development of American textile coloring has again been graphically illustrated by the new color card for 1919, Fall, which the Textile Color Card Association has just issued. The card contains thirty-two colors in silk and ten in wool. The inclusion of the woolen colors is the distinctive and new feature of the card, and unquestionably enhances its value from the point of view of the woolen manufacturer and garment producer.

Of the woolen colors the new browns are Nut, Elk, Etruscan and Morocco; Kangaroo is the Taupe shade, while Trooper is a novel blue, all distinctively smart colors. Freedom is a blue of brilliant tone, Hemlock, a deep green, and Cathedral, a dark purple. These with Navy 3 complete the list.

Of the thirty-two silk colors, blue predominates, of which the most novel are Louvain, Bruges and Ghent. The Standard Copenhagen is shown with a lighter shade, Delphinium, and one darker, Denmark, these representing the clear, true blues. France is a brilliant vivid shade and is followed by Navy 2 and Navy 3.

Peanut is a light shade resembling sand, while Beech and Pelt are darker, more on the Castor tone. Bark and Liberia represent the browns, while Lava and Bat are the latest additions to the Taupe family. Juniper and Spruce are the only greens, both being of the sage type.

The reds are Cardinal, Barberry and Oxblood, the last a very deep rich shade. Dianthus and Pomegranate can be classed as rose shades. Malaga is darker and approaches more to a delicate wine color. Petunia and Grape are the two purples chosen.

Ember is a shade of individuality, glowing with light and fire. Cuba and Mahogany and Terra Cotta tones. Henna again appears with a new and lighter shade named Persimmon. Burnt Oronge, a standard color of rich brilliancy, tops the list.

The card affords a striking example of the achievement America has made in so brief a time in the production of dyestuffs. The establishing of a color independence, and the standardization of trade colors as brought about by The Textile Card Association is likewise an achievement which America may well be proud of.

THE FUTURE OF THE AMERICAN DYE INDUSTRY

By W. H. Nichols

(*President, American Chemical Society*)

At the meeting of the U. S. Chamber of Commerce, held in Atlantic City, the following address setting forth the optimistic views of one peculiarly well fitted to observe and comment on the future of the industry, was delivered by President Nichols:

When war was forced upon the world in 1914, the chemical industry of England, France, Russia and Italy was quite unprepared for the tremendous demands made upon it, some of the most insistent being for materials hitherto unmade in any of those countries, due to the shrewd policy pursued by the Germans for many years in anticipation of the event. The chemical industry of the United States was in far better state of preparation and, as is well known, was able to fill the gaps. On our own entry into the war, it appeared to those in authority at Washington that large additions should be made to the chemical output. To accomplish this result, our Government thought best to construct largely, and to assist certain individuals and corporations in doing likewise. As the chemical industry was thoroughly prepared to take care of the requirements of our own country before the war, it is fair to assume that it is in position to do so when we return to lines of peace It is therefore manifest that a number of works in which the Government is interested will not be needed, and it is hoped that the manufacturers who so bravely and liberally contributed to the increase in output will not now find themselves in competition with governmental plants. While I am informed the Government will take careful account of this, and will do what it can to protect industry already organized when the war began, I believe the potential injury should be alluded to in order that the large gathering of manufacturers here might be in position to express itself should it so desire.

The fortunes of the chemical industry are naturally bound up with the fortunes of industry at large, and the same rules which apply to any other industry would apply in almost every case to the chemical. If the country returns to its pre-war state of manufacturing capacity, the chemical industry will be able to take care of itself and any demands that are made upon it. Therefore, its future will be identical with the future of all the great undertaking with which we are involved. I have not thought it best to take up your time with discussing general details, knowing that these will be considered in the ordinary course of events.

I have thought that with the limited

time accorded me I might be of some service in calling specific attention to an industry which is practically new in this country, which is vital, and which absolutely needs encouragement; in fact, all the encouragement which can be forthcoming from every source. I refer to the manufacture of coal-tar dyes and medicinal preparations which up to 1914 were produced almost exclusively either in whole or in part by the great German concerns. Owing to the fact that for nearly forty years these concerns had earned and obtained a practical monopoly of the whole world, they were able to charge prices which made it possible to write off all or the greater part of their plants, so that to-day they are in the position of having plants, doubtless largely increased by war orders, which stand on the books at comparatively small sums. In addition to this, they have the further advantage of having works which are perfected to date, whereas other countries have had to invest in plant, and will still have to do so, with the certainty that much of its construction may be scrapped as knowledge advances. With a full appreciation of these difficulties, manufacturers of England, France and Japan have received the strongest kind of encouragement from Government co-operation, financial and otherwise, and Switzerland permits by its laws the combination of the chief color works, three in number, in such way that processes and patents may be pooled for the common good. In Germany, as is well known, a union of all the great color works has been effected, binding for fifty years, and while the various units composing the same do not lose their identity or control over their works, etc., still their activities will be controlled by their ability to produce stated products at minimum costs. Profits will be pooled and divided as already agreed; losses likewise. These various facts leave the United States as practically the only great country this side of China frankly open to the German assault, which is sure to come and which should be nipped in the bud. Our present protective tariff is entirely inadequate. I understand that plans have been completed to ship goods already prepared in immense quantities from Sweden, Holland, Switzerland, etc., so that their German origin will be carefully camouflaged.

Of the several branches of chemical industry, at the outbreak of the war, none bulked so large in the eye of the public as the coal-tar dyes and none so gripped public attention. The reason is now not difficult to determine. While the coal-tar dye and its directly related industries do not occupy a leading rank in the world's activities when measured by the customary and usual standards, such as those of labor employed, capital engaged, value of output, tonnage of output power consumption, and the like, yet their products did perform almost, if not wholly, indispensable functions in very varied industrial operations of exceeding magnitude, importance and ramification. It is this *func-*

tional value, rather than any *intrinsic* direct money value, that now determines the new importance in which the public holds these products. Out of this new viewpoint as applied to coal-tar dyes has grown an entirely new public conception of utility which the public has embodied in the new widely current expression of "key" or "pivotal" industries by which emphasis is very decidedly placed upon functional importance, and other considerations are deliberately relegated far to the background. The public have decided to have all "key" industries firmly established at home.

Just before the war the world's total coal-tar production was under, rather than over $100,000,000 in value and approximately 250,000 short tons in weight, probably not in excess of 50,000 persons of all ages and positions engaged in their production from primary coal-tar products; in the United States just over 3,300 tons, valued at $2,470,096, were produced, employing not over 530 persons but using almost entirely foreign-made "intermediates"; but these 530 persons produced other articles valued at $1,126,699, tonnage not stated. Similarly, the above 50,000 persons produced other things such as medicinals, photographic developments, and the like of unknown value and tonnage, the world's average pound-value of dyes thus being 20 cents, and of the United States production 37.5 cents.

On account of the unavoidably mixed and therefore uncertain nature of all general statistical information on this subject, both in this country and abroad, it is hazardous to attempt great detail; the following is a very rough attempt to sketch the outline and a few of the details of this very complicated business.

With the above reservations in mind, it may be stated for the purpose of rough comparison only that in making dyes from primary coal-tar products, the world's pre-war labor per capita production in terms of dyes was not less than five tons per annum; in the United States just over six tons of dye for labor per capita were produced, but using foreign-made intermediates.

From a recent publication of the United States Tariff Commission, it appears that we had in this country in 1917, eighty-one establishments producing dyes, or dyes and intermediates, and 119 establishments making intermediates only; that 19,643 persons were so engaged, producing 23,000 tons of dyes or just over one ton of dye per person engaged per annum. If this be the proper interpretation of that publication, then it discloses an efficiency in tonnage production of about one-fifth of the pre-war efficiency in terms of persons engaged. Of the approximately 300 intermediates needed for our normal dye requirement, 134 were made here in 1917, as against but a very small number, perhaps five made here in 1914. In 1917 we made no fewer than 180 chemically different dyes, and all from intermediates of domestic manufacture. Of the variously estimated 500 or 600 chemically different dyes imported in the fiscal year 1913-14, 154 were made here in 1917 from domestic intermediates, in addition to eighteen not then imported and eight of not known composition; our imports in that year totaled 23,000 tons; our 1917 production tonnage was a trifle higher; the tonnage imported in 1913-14 of the above 154 dyes amounted to 13,500 tons, or 60 per cent of the total 1913-14 importation. Hence, our domestic dye industry in 1917 was directing its efforts very intelligently towards the production of those individual dyes of major importance to the industries requiring this class of products, and in producing substitutes for other dyes, since much of its needed material had to be diverted to other uses for one or the other of the belligerent countries, including, of course, our own country.

The whole business is made up of a host of different finished products calling for a multitude of semi-finished products, representing an individual consumption of the widest conceivable range both as to tonnage or poundage, as the case may be, and in values as now set forth in sketchy outline.

For 383 precumably chemically different dyes imported in 1913-14, and for which values and poundages are known totaling 18,000 tons, the annual importation is 47 tons; of these 383 dyes only 67 are equal to or above this average tonnage, and 316 dyes are below it; the largest individual shipment amounts to 4,253 tons and the smallest to one-seventeenth of a ton; 30 dyes are less than one-half ton; the total value of these 18,000 tons was $6,496,882, or an individual value of $26,479; the individual values range from $1,090,773 to $43. Some dyes (value not given) were imported in amounts even as small as nine pounds for the year.

In considering the future of our domestic dye industry it must not be lost sight of that with proper combination of physical plant and proper elimination of duplicated effort the German dye industry could reduce the total number of persons engaged; maintain, if not even increase, the output tonnage and increase the annual tonnage output for labor per capita. It seems not unreasonable to expect that this might ultimately be one and one-half times the pre-war figure, or say approximately eight tons per person engaged per annum.

In any event, the foregoing annual production of one ton of dye per person engaged in our domestic industry is to be permanently on a sound competitive footing. This apparently poor showing of efficiency must not be construed unfavorably to American effort; it is an unavoidable and wholly to be expected result of the conditions under which our chemists have been compelled to work by circumstances wholly out of their control, or the control of the public.

Our pressing and paramount problem has been to get these goods; matters of cost, labor efficiency and the like were wholly secondary; the goods had to be made. In the synthetic organic chemical industry, of which the coal-tar dye business is the largest factor, many ways of making one and the same thing are generally open and it calls for much experience, which can be gained only through time-consuming manufacturing effort, to decide which is the most efficient and the cheapest way. Our chemists did not have time or opportunity to enter into these refinements, they had to begin at the very beginning, and having found one way that would give them commercially usable products they bent their energies towards making that way, no matter how defective it might be, produce the greatest weight of goods in the shortest possible time, regardless of refinements as to efficiency and wastes. This was not a mistaken policy under the circumstances. Time and the goods were the essence of the problem; everything else was supremely secondary; the largest domestic industries and needs dependent thereon had to be helped out of an emergency and they were effectively helped. This is not an apology; our chemists are in no sense under any obligation whatever to apologize; it is merely an explanation.

Having made this important contribution toward winning the war, toward keeping our domestic industries going even though knowing all the time that from the point of view of efficiency, his then manufacturing methods were woefully defective and wholly inconsistent with professional standards, should not the American chemist now be given an opportunity to improve the efficiency of the methods heretofore employed, or to devise new and better ways so that we can have this key industry firmly established at home? He must have these opportunities if he is successfully to weather the stress of foreign competition. It is not a question of raw or basic chemicals; we have all of these except Chilean nitrate, in domestic abundance, and to spare, and at prices as low as anywhere. There is no magic in attaining the highest efficiency, but it requires slow, painstaking and voluminous investigation and testing to arrive at this maximum. Our chemists have the necessary training, skill, ingenuity and resourcefulness to accomplish this. What they need is proper opportunity, and to be relieved from this production pressure, in order that they may improve their methods. Such a procedure is very costly. Who will foot the bills and how? These are not matters that can be successfully solved in a laboratory; they require try-out on manufacturing dimensions and under manufacturing conditions, and hence are inseparable from actual manufacturing plants operating for commercial ends. For that reason our governmental research agencies cannot effectively aid in the solution of the problems confronting our dye manufacturers. This work, therefore, devolves wholly upon the manufacturers themselves. Since the normal pre-war competitive manufacturer's value of our total annual dye consumption is not over $10,000,000 for several hundred, possibly one thousand, widely different products, including intermediates and dyes, most of them of small individual value and tonnage, it is clear from our past experience that our manufacturers cannot themselves finance this expensive undertaking of refining and improving all needful manufacturing processes so as to have this key industry in its substantial entirety firmly established here. Our Federal legislators must find effective ways and means of lifting this financial burden and production-pressure from our dye-makers while they are perfecting their processes and increasing the variety of their output.

We, of course, have a protective tariff. In my opinion this alone will not accomplish the purpose, nor do I think that it will do so even in connection with the anti-dumping law now in force. As stated before, in England, Japan, France and Italy, the respective Governments have taken more direct action ranging from direct Government financial participation to guarantee of dividends. Yet these measures seem in the opinion of some not to promise success. Additional help in the way of complete prohibition of imports of all dyes or that device modified by permitted importation of limited amounts of specified dyes not then made at home, under Government license, all for a limited number of years, have been seriously proposed abroad. This problem is rendered the more difficult by the very practical and important consideration that dyes enter commerce not only as such and in packages like kegs, casks and barrels, but also on finished commodities such as textiles, leathers and leather goods, printed and painted articles, and an uncounted host of other things. It might even be necessary to prohibit the importation not only of dyes and the like as such, but also all articles, like textiles, which are dyes or colored with such dyes except where we have domestic sources of all the dyes involved, in any shipment.

From this it is clear that this problem is not only complex, but exceedingly difficult; that the best minds in foreign friendly countries are not agreed as to the needful helps; that the more this phase of the subject is studied, both here and abroad, the more drastic the proposed measures become. It is also clear that half-way measures cannot promise success. Since we are really determined to have this particular key industry firmly established at home, we must be prepared to pay rather more than "just enough" in order to make ultimate success not only certain but speedy of accomplishment.

If public measures are taken for the purpose of establishing this key-industry at home, it is perfectly clear that those who enter into or remain in it are in duty bound to make the country not merely seemingly but actually and intrinsically independent of all foreign competitors by producing not only the staples and the specialties in quality, quantity and cost equal to anything offered from abroad, but also to lead or at least to keep abreast of the highest foreign developments by assiduous, intelligent and resourceful research, both scientific and technical, of the whole field and all its ramifications.

Just how this shall all be brought about no man can with any confidence say to-day, but surely our dye-makers, our users of dyes and our importers of dyes and materials into which dyes enter, can find by patriotic and clear-headed conference and co-operation ways and means that will commend themselves to our legislative and other Government officials as being best designed to accomplish the will and desire of the American public which has been repeatedly and determinedly expressed and in a way that cannot be ignored.

Given a fair chance, with confidence that there will be no outside interference for a certain period, it is my conviction that the American dye industry will not only stand alone, but that it will lead the world.

NATIONAL ANILINE SEVEN PER CENT PREFERRED SHARES ON SALE

Interest is being manifested in the fact that White, Weld & Company, 14 Wall Street, New York, are offering to investors a limited number of shares of National Aniline & Chemical Company 7 per cent Cumulative Preferred Stock. These shares, which consist of a block acquired from various minority stockholders in the company who received the stock originally in 1917 in part payment for their interest in certain of the merged companies, are being offered at 87½, ex the April 1 dividend, by the brokers. They are not listed on the New York Stock Exchange.

The Preferred Stock is preferred as to cumulative dividends up to 7 per cent per annum and as to assets up to $100 per share and accrued dividends on dissolution or liquidation of the company, but if the dissolution or liquidation is voluntary on the part of the stockholders of the company, then the Preferred Stock is entitled to preference as to assets up to $120 per share and accrued dividends. The entire issue of Preferred Stock, but not a part thereof, is redeemable at $120 per share and accrued dividends, on sixty days' notice. Preferred and common shares have equal voting power. Dividends on the Preferred Stock are payable on the first days of January, April, July and October in each year. The Guaranty Trust Company, of New York, is the transfer agent and the Columbia Trust Company, of New York, is the registrar of the preferred stock.

According to a statement issued by White, Weld & Company the properties and businesses acquired and now operated by the company include the following:

Schoellkopf Aniline & Chemical Works, Buffalo, N. Y.

W. Beckers Aniline & Chemical Works, Brooklyn, N. Y.

Benzol Products Company, Marcus Hook, Delaware.

Standard Aniline Products Company, Wappingers Falls, N. Y.

Century Colors Corporation, including plant at Nutley, N. J., and sales organization in New York City.

National Aniline & Chemical Company, sales organization in New York City.

Miscellaneous plants acquired from the Barrett Company, General Chemical Company and Semet-Solvay Company, in New York and Pennsylvania.

The company has no bonds nor floating debt other than current accounts payable. No bonds or notes may be issued or guaranteed which mature later than one year from date of issue, without the consent of a majority of the Preferred Stock and Common Stock then outstanding.

As of December 31, 1918, net quick assets were equal to approximately $85 per share of Preferred Stock, and fixed assets, after heavy deductions for depreciation, represented an additional $42 per share of Preferred Stock.

Net profits for the year ended December 31, 1918, partly estimated, were reported as $12,829,000. After deducting $8,800,000 for depreciation and tax reserves, a balance of $4,029,000 remained available for dividends.

The capitalization of the company consists of $23,524,700 authorized 7 per cent Cumulative Preferred Stock, of which all shares are outstanding, and 395,990 shares of Common Stock, no par value. The company is controlled through majority stock ownership jointly by the General Chemical Company, the Barrett Company and the Semet-Solvay Company. In offering the stock, White, Weld & Company lay special emphasis upon the value of the recently organized Chemical Foundation, described elsewhere in this issue, as a means of safeguarding the future of the dye industry in this country.

KOPF TO HANDLE WESTERN SALES FOR NEWPORT

The Newport Chemical Works, Inc., announce the appointment of Mr. John W. Kopf as representative for the handling of their dyestuff sales in the Western territory.

Mr. Kopf was for a number of years connected with Kalle Color & Chemical Company, and later with A. Klipstein & Company in the same territory. Because of his long experience he is equipped to give the best in service at all times.

The appointment of Mr. Kopf is in line with the general policy of the company to place only such men as are entirely familiar with the dyestuff business in their sales department.

The Inland Chemical Company, Tipton, Ind., has filed notice of a change in its corporate name to the Inland Alkaloid Company.

The Steel Cities Chemical Company, Ensley, Ala., is planning to inaugurate operations in its new chemical plant, recently completed at a cost of approximately $500,000. The new plant replaces the works destroyed by fire some few months ago, and will be used for the production of sulphuric acid.

The E. C. Miller Company, Inc., New York, has been incorporated with a capital of $200,000 to engage in the manufacture of chemicals, oils, etc. B. Hoffman, C. E. Davidson and E. C. Miller, 1 Wall Street, are the incorporators.

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HUNTING DOWN THE HUN

Some Further Details of Camouflaged German Ownership Uncovered by the Alien Property Custodian

THE call for an investigation of the activities of former Alien Property Custodian A. Mitchell Palmer, coupled with Senator Calder's charges of inefficiency—and worse—will at once strike a number of people engaged in the dye industry as being extremely silly and a waste of time and money which might be spent to better advantage than in trying to "get something on" one of the most efficient and businesslike administrators which it has ever been our pleasure to behold filling a public office.

Senator Frelinghuysen, of New Jersey, introduced the resolution calling for the inquiry, and Senator Calder has stated a belief that there is evidence to show that a New York lawyer received a fee of $50,000 from Mr. Palmer's office, that the interests of American minority stockholders have been injured by the sale of German-owned stock, and likewise that German-owned property has been sold "at much less than its value, some of it a loss as much as 50 per cent."

Such an action on the part of the Senate, which has appointed a committee to look into these charges, taking place as it has before the report prepared by Mr. Palmer could be presented to Congress, would seem to be slightly premature, to put it mildly. However, Mr. Palmer appears not one bit flustered by these shafts, and comes right back with statements which, if substantiated, will make some of his critics wish they had waited a week or two. Although already given in part to the press, the fuller details will be made public at a later date, at which time those which bear particularly upon the dye industry will be treated of in these pages.

In the meantime, the airing of the controversy again directs attention toward that portion of Mr. Palmer's report which deals with the uncovering of carefully concealed German ownership and control in what purported to be Simon-pure American dye companies and the various legal subterfuges which it was sometimes necessary to resort to in order to eliminate the undesirable element. When a tumor develops in a patient's throat, the surgeon employs certain recognized methods for eliminating it; when, on the other hand, it makes its appearance in the stomach, he must get at it by other means, and it was thus that the Alien Property Custodian's forces were obliged to diagnose and treat the individual cases where the presence of German ownership was suspected. The Bayer Company expose, details of which were printed in the REPORTER at the time of its advent, was a typical example. Since then, however, other cases displaying fully as much ingenuity on the part of both hunter and hunted have been made public, and we herewith present two or three of them.

Mr. Palmer's report—and particularly that portion of it dealing with the chemical industries—is of such absorbing interest as to challenge the attention of the layman as well as of him whose interests lie close to the cases in point. He shows how, step by step, the great production of synthetic dyes and medicinals was carefully cultivated by the Germans, aided by government grants and encouragement, and how widespread the public interest in chemical industries was in Germany—an interest so great, by the way, as to send the stock of the Hoechst works up 150 points in a single day upon the announcement of its purchase of the Pfleger patent for synthetic indigo. He shows how the great attention given to research made for the quick and easy solution of each industrial problem as it arose, and likewise how the heavy emphasis laid on the value of quantity production carried on by competing houses eventually led to overproduction, which in turn led to a determined effort to establish and maintain a large export trade.

Here began the dumping policy which is now so well understood, but which was scarcely thought about by the American public in those days. Mr. Palmer states that the natural advantages of the German industry, as compared to the industry in other countries, prevented serious competition in Germany itself. Since the Government's tariff and other policies enabled home prices to be kept up, it was naturally to the advantage of the German manufacturer to produce far more than he could sell in the home market, even if his export trade had to be carried on at a loss, when by doing so he could use a process so economical that his profits on home trade would be enormously increased. In this, the utilization of by-products also played an important part, and it was fully realized by the military and civil authorities that by building up an enormous dye industry and stifling, so far as possible, the industry in other countries, Germany would be in an exceedingly advantageous position with regard to explosives in the event of a war.

This desire increased the tendency to combine, until the production was practically controlled by the six huge firms constituting the famous "dye ring." The subsequent acquirement of thousands of patents in this country, followed by the action of the United States in seizing and selling them, which resulted in the incorporation of the Chemical Foundation, is already well known and may be omitted.

Turning our attention to German methods of choking off all attempts at competition, we are informed that the Germans, not content with the legitimate advantages of their industry, supplemented by the ruthless if legal tactics of dumping and destructive underselling, likewise proceeded to fill their methods of carrying on business in this country with corruption. Bribery of dyers was carried on almost universally and on a large scale. The head dyers of the various mills and other chief customers of the dye manufacturers were subsidized in many direct and indirect ways. These dyers frequently controlled the situation, since if any one of them wished to have his superiors cease using the dye of one manufacturer and buy instead the dye made by some other company, nothing was easier than to control the complicated process of dyeing in such a way that the dyes furnished by the house which was the least liberal to the dyer would produce wretched results. It would then be an easy matter for the dyer to get the manager of his mill to try the dyes offered by the more liberal briber, and with the exercise of a little care the new dye would be sure to produce satisfactory results. So extensive was this corruption that Mr. Palmer came across only one American consumer which had escaped its ill effects. This concern, the United Piece Dye-Works of Lodi, N. J., avoided the difficulty by having all its dyes purchased by the head of the company himself, under contracts providing that no barrel or package would show the name of the manufacturer. The company was thus able to designate the dyes which its dyers were to use solely by its own arbitrary numbers, and the dyers were thus unable to determine whose dyes they were using and to whom they should look for their graft. Against these illegitimate methods practised by concerns having such resources and compelled by such an imperious necessity to seek and maintain supremacy in foreign fields, honest domestic competition found the utmost difficulty in maintaining itself, and it is therefore not strange that until the outbreak of the war the American industry was of little importance.

At the time when Mr. Palmer took office the American dye industry was active and profitable, and in almost undisturbed possession of the field. In the case of the faster dyes, Germany's patents had prevented every attempt at American production; and while the trading with the enemy act authorized the issuance of licenses under these patents, the terms were such that no licensee could hope to continue the manufacture in competition with the Germans after the war. The German houses were keeping together their branch houses and unless they could be deprived of the benefit of these their re-entrance after the war into the field would be easy.

The dye and chemical industry, when the war began, became the natural center not only of espionage but of propaganda and of direct governmental activity.

Among the early examples of this unearthed by the Bureau of Investigation was that of the by-product coke plant established by the Lehigh Coke Company. The latter was a corporation organized by a syndicate represented by the Deutsche Bank. At the time the war broke out it had been in operation for a number of years and was promising considerable success. It had not, however, gone extensively into the manufacture of coal tar and its derivatives. In 1915, however, it established a considerable plant for these purposes. Every ounce of toluol and benzol which was produced was sold under contracts binding the purchaser not to use or permit the use of the product for the manufacture of explosives or for the benefit of the Allies. An examination of the correspondence between Hugo Schmidt, the agent of the Deutsche Bank in this country, and the bank shows that the entire undertaking represented by this by-product plant was a direct effort by the German Government to prevent the making of these valuable materials for explosive manufacture in the United States, or rather to prevent their use for the benefit of Germany's enemies. The undertaking was decided on because the Deutsche Bank had ascertained that the Bethlehem Steel Company, which had a contract with the Lehigh Coke Company for the latter's coke and gas, had practically determined to build such a plant for its own purposes, but that this decision might be changed if forestalled by the erection of a plant by the Lehigh Coke Company. This actually occurred, with the result that large supplies of these invaluable coal-tar products were kept out of the munition industry; while the demand for them from other industries was prevented from having its natural effect in bringing into existence American plants which would have been free to supply the Allies. This condition continued until just before we entered the war, when the Deutsche Bank, doubtless better informed than most as to the probabilities, sold out the Lehigh Coke Company to a nominee of the H. Koppers Company, which in turn immediately resold to the Bethlehem Steel Company.

A still more striking instance, uncovered by the Bureau of Investigation under the direction of Francis P. Garvan, with important aid from the Department of Justice and the Secret Service, was that of the organization known as "The Chemical Exchange Association." The purpose, and for a time the effect, of this enterprise was to corner the supply in the United States of phenol, an essential of the explosive industry, and to prevent its use for the manufacture of high explosives (picric acid and trinitrotoluol, or T. N. T.). This undertaking was apparently initiated by Dr. Albert, the financial adviser of the German Government in this country, in direct collaboration with Von Bernstorff. Dr. Albert carried out the scheme through Dr. Hugo Schweitzer, the chemist and leading spirit of Bayer & Co., Inc., the American agent of Bayer, of Leverkusen. The outbreak of the war had instantly stopped the importation of phenol, which was not manufactured to any extent in this country. Mr. Thomas A. Edison, who required large supplies of phenol for the manufacture of his phonograph records, which were made of a synthetic resin of which phenol and formaldehyde were the chief ingredients, immediately set to work to solve the difficulties involved in the manufacture of this substance. By the most strenuous work the problem was solved in his laboratories in a few weeks and he commenced the manufacture of very considerable quantities, producing a large surplus beyond his own requirements. This surplus would normally have supplied the means for the manufacture of fairly large quantities of the most valuable explosives. To prevent this, Dr. Schweitzer, on June 22, 1915, entered into a contract with the American Oil & Supply Company, which was the selling agency of the Edison works, for practically the entire surplus of phenol available for sale. As security for the faithful performance of this contract, Dr. Schweitzer put up $100,000 in cash, which was furnished to him by Dr. Albert, and also a $25,000 surety company bond. A week later Dr. Schweitzer made a contract with the Heyden Chemical Works (a mere branch of the German house of Chemische Fabrik von Heyden, of Radebeul), of which George Simon, a German subject, was the manager, by which the entire supply of phenol thus purchased was to be taken by the Heyden company and converted into salicylic acid and other harmless medicinal and flavoring products. The arrangement was that the Heyden works were to return to Schweitzer 1 pound of salicylic acid for each pound of phenol and keep the surplus of the converted product. This involved a very large profit for both parties. In the meantime, to avoid doing business under his own name, Schweitzer registered as a trade name the "Chemical

Exchange Association," which was described as a copartnership consisting of himself and Richard Kny. Kny was the father-in-law of George Simon, of the Heyden Chemical Company, and was the ostensible proprietor of the Kny-Scheerer Company, one of the most important manufacturers in this country of surgical instruments. This company, like the Heyden Chemical Works, was a purely German-owned concern, and both have since been taken over by Mr. Palmer. Details of the sale of the Heyden works last week will be found on another page of this issue.

The net result of all this was a profit to the Chemical Exchange Association of $816,000, which was apparently equally divided between Schweitzer and Kny. Schweitzer's share of the profits seems to have gone straight to the German Government, but for some unexplained reason Kny appears to have been allowed to keep his. The attempt to prevent the use in explosive manufacture of American phenol was completely successful for a time. The success of the venture was celebrated in the latter part of 1916 by a dinner given by Schweitzer and Kny at the Hotel Astor in honor of Dr. Albert. Among other guests were George Simon, F. A. Borgemeister, Norvin R. Lindheim and Captain Wolf von Igel of the German Embassy—a typical gathering of the most active German propagandists in the country.

Less striking examples of the same sort of thing might be cited by the score. An interesting instance is the case of Dr. Isaacs Strauss, organizer and president of the Chromos Chemical Company. Dr. Strauss arrived in this country in September, 1914, apparently with a direct mandate from the German Government for propaganda among the Jews. He proceeded to establish a periodical known as the *"American Jewish Chronicle."* Funds to the amount of $85,000 were supplied for his activities by Dr. Albert, and $15,000 by Von Bernstorff, and his chemical company, profiting by the enormous war demand and prices, rapidly began to supply further sinews of war. Shortly after the entry of the United States into the war his conduct attracted the attention of the military authorities, and the ensuing investigation led to his internment, whereupon his Chromos Chemical Company and the *American Jewish Chronicle* were taken over by the Alien Property Custodian.

Revised plans are being prepared for the National Aniline & Chemical Company's proposed brick and steel addition, 45 by 85 feet, to its plant at Ditmars Avenue and Ninetieth Street, Brooklyn.

AMERICAN DYESTUFF REPORTER
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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

BOYCOTTING THE GERMANS

We have repeatedly heard the question discussed pro and con as to whether American consumers of dyestuffs will turn readily to German dyes if they again become available. Personally, it is the REPORTER's belief that the very large majority of consumers in this country will refuse to purchase German dyestuffs or patronize German concerns as long as there is any possible means of avoiding it. In recent months we have received a great many letters from representative consumers which have, in one form or another, expressed the determination of the writer to confine his purchases strictly to American concerns. Two of these letters, which are typical of the sentiments expressed, are reproduced herewith:

AMERICAN DYESTUFF REPORTER:

Gentlemen—We are desirous of limiting our purchase of dyestuffs to strictly American concerns. We have been solicited by ———, of New York.

Will it be asking too much of you to advise us confidentially whether this is an American concern in the strictest interpretation of the term? If you do not desire to do this we shall understand perfectly the reasons, and request that you do not hesitate to tell us so.

Very truly,
W. E. K. & SONS,
Philadelphia, Pa.

AMERICAN DYESTUFF REPORTER:

Gentlemen—We were much interested in a recent editorial in your paper speaking of camouflaged German firms operating in the dyestuff field.

We use dyestuffs in connection with the manufacture of our products, and would like very much to be certain we are not using any German colors. For this reason, if it is possible for you to do so, we wish you would advise us of the concerns which you believe to be strictly American.

One concern with whom we do some business is ———. They have shown statements claiming to be strictly "dyed-in-the-wool" Americans. We have our suspicions, however, and would appreciate any information you can give us.

Very truly yours,
——— PAPER CO.,
———, Michigan.

These two letters are typical. For obvious reasons it is not good policy to give either the names of the writers or of the firms inquired about, but these and many similar letters are on file in our office and will be produced should occasion arise.

The point which strikes us most forcibly in letters of this type is that the consumers in question are not only opposed to the purchase of dyestuffs from German firms but they are willing to go to considerable trouble to make sure of the fact that they are purchasing only from bona-fide American concerns.

In the two cases given above we were able to give one firm a perfectly clean "bill of health." In the other case we were compelled to report adversely and were notified by the inquiring concern that they would not hereafter continue their business relations with the firm in question. The REPORTER believes that these people have the right spirit and that if all consumers would take equal precautions it would never again be possible for German firms to do any considerable amount of business in the dyestuff field.

To manufacture chemicals of all kinds, the Macby Chemical Company has been incorporated under the laws of Delaware at Dover, that State, with a capital of $100,000. The incorporators are Ferris Giles, M. M. Lucey and C. Hellig, of Wilmington.

APPLICATION OF ANTHRAQUINONE VAT DYESTUFFS TO CALICO PRINTING

By E. Greenhalgh, A.M.S.T.

The vat dyestuffs derived from anthraquinone as the parent base are much more recent than those of the indigoid type. Rapid progress has been made of recent years in this vista of color chemistry, with the result that the fastest colors to all deteriorating agencies have been produced and placed easily within the reach of the color user. The anthraquinone vat dyestuffs are in fact the very acme of color production. As compared with the indigoid vat dyestuffs, they are much more complex in structure, more difficult of manufacture, and harder to print perfectly on textiles. In this series of colors there are several distinct species, which all separately require a special method of application. The simplest of these species are the derivatives from the anthraquinone itself, that is, dyestuffs produced from the beta-amino-anthraquinone or betamine. Messrs. Levinstein are now producing three colors of this type, viz., Duranthrene Blue RS, Duranthrene Blue CC, and Duranthrene Yellow G, all of which are sent out in paste form. Duranthrene Blue RS is produced by the fusion of beta-amino-anthraquinone with caustic potash at a temperature of about 250-270 deg. Cent., and the CC brand is a halogen derivative which is fast to bleaching. Duranthrene Yellow G is produced in a similar way, except that the fusion is carried out in presence of an oxidizing agent such as potassium nitrate.

Methods of Application

The methods of application of these three colors are various, and yet many are far from perfect. Before proceeding to actual preparation of the printing pastes, an examination of the colors themselves will throw much light on their behavior towards various reagents used in their application. As members of the class of vat colors, it is of interest to scrutinize the methods of vatting or reducing, and the properties of their leuco bodies. All three colors are capable of being reduced at a temperature of 40-50 deg. Cent. in a fairly concentrated alkaline bath, and the leuco bodies of two, Duranthrene Blue RS and Duranthrene Yellow G, are moderately stable for a certain period. The leuco compound of Duranthrene Blue CC brand, however, is much more sensitive to alkalies, and if care is not taken will rapidly deteriorate so that no color can be obtained from the solution. This property must be carefully borne in mind when the color is being produced, both in the printing paste and in the subsequent steaming process. The leuco bodies of all three compounds are very sensitive to salts of iron or calcium, rapidly uniting with these salts, forming the corresponding metallic leuco salts, which under no circumstances can be dissolved or assimilated with a printing thickening. The leuco compound of the Duranthrene Blue CC is the one most readily affected by these impurities; so much so that alkali containing the slightest trace of iron cannot be used in the preparation of the printing paste. Again, the leuco bodies of all three colors are susceptible to over-reduction themselves, and both excess of reducing agent and alkali, and temperature, are solely responsible for this defect.

Duranthrene Blue RS and CC are supplied in paste form of 10 per cent strength, and the Duranthrene Yellow G as a paste of 8.3 per cent strength. These pastes are all very finely ground, and the degree of dispersion is so high that a sample of any of them diluted with water appears to be a solution to to the naked eye. In such a state of suspension, according to physical chemistry, the presence of any electrolyte is sure to cause agglomeration of the particles, and taking this fact into consideration, the color pastes are supplied absolutely neutral. If a small sample of Duranthrane CC, for instance, be taken and diluted with water in a test-tube, and a small amount of electrolyte added, such as caustic-soda liquor, agglomeration of the particles takes place rapidly and the color rapidly settles out of suspension. On the addition, however, of a little hydrosulphite of soda, the color rapidly reduces and goes into solution. This will only occur providing that pure reagents have been used, for had there been any trace of iron or calcium present, the corresponding leuco salt would have been formed and no solution could have been obtained under any circumstances. These facts come very much into prominence when determining the right or wrong method for making up the printing pastes.

THE STANDARD METHODS

There are three standard methods by which anthraquinone vat dyestuffs may be applied to calico printing, namely: the Glucose Alkali process, the Potash process, and the Bicarbonate process. As these processes do not give the maximum result when used indiscriminately with these colors, it will be advisable to treat each process separately and enumerate the colors which are produced best by that process.

The Glucose-Alkali process.—Of the colors mentioned the only product which can be printed successfully by this process is Duranthrene RS, which gives extremely bright and full results by this method. The leuco compounds of Duranthrene CC are affected by strong alkali and iron salts, and cannot therefore be used by this process. Duranthrene Yellow G can, however, be printed by this method; but the result is usually dull. It has been found by repeated experiments that more than 8-10 per cent. of caustic soda in a thickening is even detrimental to the leuco compound of the Blue RS. The following thickening has been found to be of the right consistency and alkalinity:

	Parts
Dextrine	400
Indian cornstarch	100
Water	200
Caustic soda, 76° Tw. (35% NaOH)	300
	1,000

The above thickening is heated to 160 deg. Fahr. and cooled. The printing paste is made up as follows, in the cold:

	Parts
Duranthrene Blue RS 10% paste	100
Glucose 40% solution	150
Water	50
Caustic thickening	700
	1,000

AGEING

The above color printing paste is applied to the cloth, dried, and aged or steamed 2-3 minutes at 102 deg. Cent. in the hydrosulphite ager or 6-8 minutes in the ordinary ager at 100 deg. Cent. On emerging from the ager the color of the print should be very dull gray, and the printed portions should be clean at the edges. If there occur, particularly on the back of the cloth, brown irregular smudges alongside the printed portions, the color has been over-reduced, and resolved into derivatives of anthraquinone such as betamine and alizarine compounds, which have no longer a value as dyestuffs. After ageing, the perfect oxidation of the color has to be carried out, and even at this stage extreme care is required in order to produce perfect results. In order to obtain the maximum effect on oxidation, it is advisable to run the prints through cold water containing about 5 per cent of hydrogen peroxide, and subsequently to allow the pieces to lie in pile for about an hour. The prints can then be soaped at the boil, and the brightness of shade increases with longer soaping. Strong oxidizing agents, such as bichromate or perborate, used along with sulphuric acid, should never be used, as loss of color and dullness result.

The Potash Process.—By this process all three colors can be printed, and excellent shades result; but as it is more expensive than the former process it is only used in the cases of the Duranthrene Blue CC and the Duranthrene Yellow G. Duranthrene Blue CC is the hardest of these dyestuffs to apply, and extreme care is required in its production. In this process comparatively small amounts of strong alkali are used, the alkali employed being potash. This should be free from iron, and the usual works commodity very often is quite suitable. The following thickening has been found to give excellent results with Duranthrene CC and Yellow G:

	Parts
Dextrine	600
Cornstarch	100
Water	280
add	
Pure caustic soda	10
add	
Potash	100
Water	110
	1,200

The above is mixed and heated to 160 deg. Fahr. and cooled. The printing pastes are made up as follows:

	Parts	Parts
Duranthrene Blue CC 10% paste	..	100
Duranthrene Yellow G 8.3% paste	120	..
Water	150	170
Glycerine	50	50
Thickening above	600	600
Formosol 50% solution	80	80
	1,000	1,000

The colors are printed, dried as rapidly as possible, preferably over chests, and then aged for seven to eight minutes in the hydrosulphite ager at 102-103 deg. Cent. The color of the Blue CC after ageing should be similar to the aged Blue RS, and there should be no sign of over-reduction. The Yellow G print should be intensely blue and clear. The main difficulty in the ageing of Duranthrene Blue CC is that of excessively dry steam, as this has the tendency to prevent reduction. The subsequent oxidation of these colors should be carried out as carefully as in the case of the Blue RS, and in a similar manner.

The Bicarbonate Process.—This method of production depends on the resolving into solution of the color before adding to the printing thickening, and subsequently printing the color in the leuco state. By this method both Duranthrene Blue CC and Duranthrene Yellow G can be applied, although, in the case of the former, deeper and duller shades result as compared with the potash process, whilst with the latter color the maximum of brightness and strength is obtained. The following gives an example of the thickening required for this process:

	Parts
Dextrine	600
Cornstarch	100
Water	300
	1,000

The above is heated to 160 deg. Fahr. and cooled. The following recipe illustrates the production of the printing paste:

	Parts
Duranthrene Yellow G 8.3%	120
Water	150
Caustic soda	70
Hydrosulphite of soda	10
Glycerine	50
Thickening	450
Formosol 50%	80
Bicarbonate of soda	70
	1,000

The above is printed, dried and steamed by the method described in the potash process, and subsequent oxidation is carried out as previously detailed.

These three colors form a substantial asset to the calico printer who is catering for the high-class market, insomuch as they are three of the fastest colors known. The fastness to light, washing and perspiration is excellent, whilst SO_2 produces deeper tones, and Duranthrene Blue CC and Duranthrene Yelow G are absolutely fast to chemicking. Such colors as these are exactly the requisites for shirtings, and it is a consolation to know that they are of British manufacture.
—*Dyer and Calico Printer.*

The capital of the Mynol Chemical Company, Philadelphia, Pa., has been increased from $10,000 to $90,000.

No plans for reorganizing the recently dissolved Lanfield Aniline Color Company, Chicago, Ill., have as yet been announced.

SILK DYES OF YESTERYEAR ON EXHIBITION

What is perhaps the most wonderful exhibition of old French silks in the world is to be seen in the library of the International Buyers' Club in New York. The collection comprises more than 700 specimens of silk manufactured by the descendants of the Huguenots who settled in Spitalfields and Bethnal Green, London, after the revolution of the Edict of Nantes in 1685. It has lately come into possession of the International Buyers' Club and is said to be the most valuable of its kind in the world.

The fabrics of the collection are as durable and the colors as brilliant as if they were turned from the looms yesterday. The disintegration of the silk fabric that one sometimes sees in Chinese mandarin coats has not taken place. Indeed, the old French silk workers did not develop their art from the ancient Chinese, who jealously guarded the secrets of their craft.

The silk industry was originated in the Western world by two Persian monks who had resided in China, and who in about 550 brought to Constantinople the eggs of the silkworm in a hollow bamboo tube. From these contents developed the silk industry of Europe.

There is an elusive delicacy about the French silks that quite defies description. Many of the French patterns are quite up to date and are said to be in line for any revival of styles. This is particularly true of the tiny patterns in checks, blue, red, green and brown in fields of white silk, all of which are adapted to cravats. The most gorgeous colors are shown in the silks for upholsteries; the most delicate and evanescent in those evidently intended for women's apparel or draperies.

Wonderful dyes the French weavers used. Vegetable dyes that increase in their beauty as the years go by. Gold, pure yellow, brilliant gold is shown; white, ivory, flesh, coral, turquoise, apricot, ocean green, ashes of rose, chartreuse, honey, maple, geranium, scarlet, cardinal, dark cardinal, garnet and a thousand other tints that would be hard to match to-day even when we have 323 shades of navy blue alone.

The strength and durability of the silks in this collection, some of which are hundreds of years old, suggest that with reasonable care they are proof against integration of the ages. There is not a cracked, worn or thin sample among them. The brilliance of their dyes, some of whose formulas are at present lost to the world, is evidence that the world may never be forced to be completely dependent upon any one nation for its dyes and that the forgotten lore in the art of dyeing fabrics reveals the varied future that may be revived under the spur of necessity.—*Scientific American.*

HEYDEN CHEMICAL WORKS BRINGS $1,500,000 AT SALE

The Heyden Chemical Works, one of the largest concerns of its kind in the country, which was German-owned before its seizure by former Alien Property Custodian Palmer, was sold to Allan A. Ryan last week for $1,500,000. Director of Sales Joseph F. Guffey disposed of 747 shares of stock of the par value of $200 in this company. The sale was held at Garfield, N. J., where the principal plant is located. An account of this company's activities while under German control before its seizure by Mr. Palmer is given, with others, in the leading article this week.

The factory group of buildings consists of an office, laboratory and seventeen mill buildings, which include a well-equipped machine shop, modern warehouse and garage. An additional salicylic acid sublimation plant has been erected and is about ready for operation.

The property of the Heyden Chemical Works totals about seven acres, to which the company has a clear title, free from encumbrances.

The principal distribution of the products of the Heyden Chemical Works is through the usual pharmaceutical channels in the United States. A branch office and stock room is maintained in Chicago.

The company has a contract with the Bayer Company for the manufacture and sale of acetyl-salicylic acid (popularly known as aspirin). This contract by its terms continues for a period of six months after the promulgation of peace by the President of the United States.

It also has contracts for the sale of acetyl-salicylic acid to large distributers throughout the United States. Contracts which run for an average period of about six months have been made with leading distributers for the following articles: Salol, sodium salicylate, methyl salicylate, strontium salicylate, creosotinic acid, formaldehyde, vitargol, progonal, Hexamethylenetetramine, chlorcosane, dichloramine-T.

The Heyden Chemical Works owns a half-interest in the American Condiments Company, capitalized at $5,000 represented by 100 shares of a par value of $50 each.

This company has acted as a selling agency in New York City for the saccharine products of the Heyden Chemical Works.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

H. Y.—Question—In the coloring of our paper with cochineal we use an aqueous extract. In the future we intend trying the dry powdered material, but do not know just what strength solution to use.

Answer—As the coloring of paper requires very little dye, would recommend that you use a 0.15 per cent solution of the cochineal, calculated as original cochineal per 100 pounds paper. Render the contents of the beater alkaline just before adding the coloring.

A. I. C.—Question—How can white furs be dyed black and brown from a cold bath or vat? The colors have to be fast to light and rubbing but need only be moderately fast to washing, so as to stand rain.

Answer—The dyeing of furs is, generally speaking, a very difficult proposition and one which has to be worked out rather through experience than in accordance with any definitely fixed formula. As a rule, furs are dyed the proper shades by successive oxidizing processes.

We understand, however, that the Seydel Manufacturing Company, of Jersey City, has, in their "Furamine" dyes, a series of dyestuffs which will produce satisfactory shades in a single operation in a lukewarm bath. The method employed is, first to mordant the skins with chrome or other salts and then dye them in a bath of the proper "Furamine" dye which also contains hydrogen peroxide.

R. D. C.—Question—Can you advise us who are the manufacturers of the Brilliant Acid Blue G 2502 referred to on page 13 of your issue of March 3?

Answer—This product is one of those most lately developed by the National Aniline & Chemical Company, Inc. We understand that the product is not actually ready in commercial quantities but will be so within a very short time.

G. H. D.—Question—Can you advivse me if any American dyestuff manufacturer is actually producing Wool Green S, also Wool Violet 4 BS?

Answer—As to their being any American manufacturers of Wool Green S, our inquiry throughout the trade leads us to believe that there is none. It may be possible that some of this product has been produced in small quantities, but certainly there is no large source of supply. We understand, however, that one large American manufacturer contemplates an early production of this product.

As to Wool Violet 4BS, we do not find this product among the recognized dyestuff nomenclature. We are inclined to think that you may refer either to Victoria Violet 4BS, Formyl Violet S4B, or Acid Violet 4B extra. In the case of Victoria Violet 4BS, the National Aniline & Chemical Company is producing a product which they call Azo Wool Violet 4B, which is chemically a duplicate of Victoria Violet 4BS, and has the same dyeing properties; that is, it leaves silk white and is quite fast to light. In the case of Formyl Violet S4B and Acid Violet 4B extra, the National Aniline & Chemical Company is producing a product which they call Wool Violet 4BN which is very similar to both of these products and has practically the same dyeing properties.

NEW OFFICE BUILDING FOR THE NATIONAL

Owing to the demands of a constantly expanding dyestuff business, the National Aniline & Chemical Company, Inc., has arranged to erect a four-story office building at Nos. 15-17-19 Burling Slip, directly adjoining, and to the west of their present New York office building, at No. 21 Burling Slip. The present structure, a ten-story building devoted to the sales and executive offices of the company, will be continued as such. Until the new addition is ready for occupancy, the drug, chemical and special products departments will occupy the third floor at No. 28 Burling Slip.

WANT MEN FOR WORK IN DYES

Department of Agriculture to Make Appointments in Bureau of Chemistry

The Color Laboratory of the Bureau of Chemistry, United States Department of Agriculture, desires to obtain men experienced in the art of dyeing and the use of colors.

The duties will involve examination and testing of dyes with a view to determining their color values and methods of utilization.

A civil service examination to obtain men for this work will be announced shortly. In the meantime appointments of persons suitably qualified can be made on a temporary basis, pending the applicant's qualification under the civil service examination. Salaries will range from $1,440 to $2,280, depending upon the education, training and experience of the applicant.

Applications for temporary appointment should be made to the Bureau of Chemistry, Department of Agriculture, Washington, D. C.

NOTES OF THE TRADE

Following the destruction of their plant, located on Meadow Street, Newark, N. J., by fire recently, the Miller & Moran Chemical Works, 154 Nassau Street, New York, is considering plans for its reconstruction.

It was estimated that a loss of $150,000, including machinery and equipment, was sustained by the Atlantic Dyestuff Company, Burrage, Mass., when fire destroyed a portion of its plant. The company will rebuild.

Walter E. Newbert, president of Newbert Color Company, of 88 Broad Street, Boston, has been making an extensive business and pleasure trip through the West as far as California.

Dyestuff agencies in Boston and vicinity report a strong demand for very bright shades, especially pink and green. High prices have to be paid for these commodities.

Announcement has been made by the Lehigh Silk Hosiery Mills, New York, that the capital of this organization has been increased from $50,000 to $200,000.

According to figures recently made public, imports of aniline and alizarine dyes at Bombay, India, during 1917, reached a value of $1,450,000, and of other dyestuffs, $2,250,000. Among India's exports to the United States was included $44,000 worth of indigo.

To conduct a commission business in cotton, silks and chemicals, the Albert Cardillo Company, Inc., has been incorporated under the laws of New York State with a capital of $5,000. Headquarters of the concern will be at 262 William Street, New York City, and the incorporators consist of C. and E. Masselli and A. Cardillo.

AMERICAN DYESTUFF REPORTER

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The Chemical Foundation

An Editorial

Dyestuffs from Poison Gases

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A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

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BUSINESS BESTIRS ITSELF

"Better Times Are Coming," Says Textile Man, Who Declares that Mills Will Come a Long Way to Meet Dye Makers in Matter of Prices

AFTER nearly four heartbreaking months of apathy, the trade in American-made dyestuffs is at last beginning to pick up a little. It is only a very little, to be sure, but it is to be hoped that this faint flicker of returning consciousness is the forerunner of convalescence and eventually complete recovery for the patient.

When it comes to hibernating for the winter, the efforts of the bear and the ground hog are mere child's play in comparison to the exhibition which we have been privileged to witness since the signing of the armistice. The ground hog, to be sure, has a most regrettable habit of changing his mind, or of deciding that someone has called him too soon, for often after he wakes from his Marathon slumbers and comes forth he sees his shadow, or gets nervous, or something, and then back he goes for six solid weeks more in the hay.

It would be a pity, indeed, if it turned out that the dye trade was only fooling, after all. Hopes have been aroused by the recent signs of life (oh, yes; we admit they are infinitesimal enough) and should these be too rudely dashed, it would not be a good thing at all, at all—neither for the industry nor for the consumers.

But the consumers are largely to blame; they have brought most of their troubles upon themselves, and the advancing American dye industry has been placed somewhat in the position of a rapid express train which has been halted while repairs are made to the locomotive of a huge freight train which occupies the track ahead. Bless you, we do not mean this for a low, unprincipled attack upon the consumers. Far from it. But they, like other humans, have had designs of their own; they have indulged in plottings and plannings together, and a vast number of them, in the privacy of their separate offices, all got hold of the same subtle, exclusive idea at almost the same instant. And the idea was something like this: The jobbers are getting altogether too important; the retailers—well, the less said about *them* the better!—and we have been mercilessly exploited by a grasping and avaricious aggregation of hoodlums masquerading as dye manufacturers. Very well! we too can be hard, if necessary, and by simply remaining dormant for a spell we shall be able in the end to triumph over our enemies and secure our deliverance out of the land of Dreadful Prices and Double Dealings.

In a recent article in the REPORTER, one of the prominent consumers went on record to this effect, and was quoted as declaring that until dye prices came down, the consumers would purchase no more than what sheer necessity demanded. on the assumption that prices must come down sooner or later anyway, and that this method would hasten the happy day.

Perhaps the most encouraging sign which has recently come to our attention is the statement of an underwear and hosiery selling agent, who said to a representative of the New York *Journal of Commerce:* "We might as well admit it. We were wrong and we have made the market what it is today. The manufacturers as a class thought they could continue to get the prices they were getting when the armistice was signed, and when we asked them if such and such a thing could be done they would reply that it was impossible. In one case I made a proposition to one of my mills and received the reply that such a move was impossible and would not be a good move anyway. To-day that mill is doing the exact thing I advocated.

"The manufacturers did not face the facts and went on the assumption that business could be obtained by preaching optimism. I would like to ask the question: Does optimism change fundamentals?

"How much better it would have been to have told the jobbers when they came to town in January that we were not ready for them at that time and to have advised them to go back home until March. In the meantime we could have gone over the situation and found out where we stood—and found out what the real situation was."

Our only regret is that this agent could not have been a trifle more explicit as to the proposition which he made to his mill, but the acknowledgment that some of the fraternity have seen the light gives indication that we have progressed a long step in the direction of better business and less bitterness of spirit. The first means for the elimination of a disorder or disease is the accomplishment of an accurate diagnosis; after that, if the malady is curable, the rest is merely a matter of applying the proper remedies.

A mill man, commenting on the present situation, told a Reporter representative that in his opinion the jobbers were partly to blame for the lack of action, but that the retailers throughout the country should bear the brunt of the responsibility. He declared that conditions were at times well-nigh intolerable, and added that the retailers, under the system in force to-day, did not buy the goods at all, but merely borrowed them.

"We sell to the jobber," he declared, "and he disposes of his goods to the retailer. You'd think they'd be pretty well sold and off our hands by that time. Not a bit of it. We've had whole cases of goods returned to us from the Middle West with not a single word of explanation. This occurs most often when the sale has been made direct by one of our own representatives. There is nothing we can do; very often the goods have been sold on credit and have not been paid for anyway. We can only return them to our stock rooms and hope for better luck later on.

"In the early days of the war, particularly," he went on, "we were very often pinched by the rapidly ascending prices of raw materials, including dyestuffs. This item, in fact, was one of the most important of all. We could not legitimately complain on that score, however, but I can tell you that we have taken many an order which later on we should have been glad to erase from our books before filling. I have a friend whose paper profits at the end of a certain period had mounted well into six figures—on the basis of business transacted. But I met him the other day, and he said to me, 'Do you know what the net outcome of my operations for the past three years will mean to me? It will mean that I have just made a living; that is all. I got big prices, but I was charged even bigger; it cost more to do business, and most of what didn't go for overhead, labor, etc., and for unheard-of prices on raw materials, the Government took back again in taxes.'

"And there is another thing which played the very Old Nick with some of us," went on the mill man. "There were a number of instances when I could have sold for less—and made a very fair profit—than the prices fixed by the Government. But that did me no good; they certainly succeeded in protecting the Southern cotton-grower, but we were left in an exceedingly ticklish position as a result. Then followed the present inactivity, and we just naturally can't see how it is up to us to make the first move. Prices on dyes, among other things, have got to come down a bit. The dye industry is being well taken care of, and we believe in boosting for it on every possible occasion, but the time has come to call a halt on some of the demands being made.

"They tell me that under the disposition of German patents by Palmer, who sold them to the American dye manufacturers, the latter will be in a position to prosecute German firms which attempt to ship these dyes into the United States. I understand that this has been denied, but on the basis of what I have read of the matter I am inclined to think it can be done. If such is the case, it will be a mighty good thing, and I, for one, would like to go on record as being heartily in favor of any measure which promises adequate protection to the dye industry We have sacrificed too much already in order to get it established to deliberately throw it away again without a struggle, and I am convinced that most of the others feel the same way about it. But if there is any doubt about the potency of this new scheme, the dye manufacturers ought to work for the establishment of a licensing commission regardless, so as to be on the safe side. But I believe that the same Government which guarantees protection to the dye industry ought at the same time to guarantee protection to the dye consumers against further profiteering of the kind we have experienced.

"If I thought that the licensing idea would tend to keep dye prices up to their present levels, I would use what influence I possess to fight it tooth and nail. But I am willing to give them the benefit of the doubt on the assumption that Congress will do the fair thing by all. And it is going to be very difficult not to hurt somebody's feelings when they come to frame such a law.

"Within the past week or two, business has shown some signs of picking up. There ought to be business enough for all hands, and I will say that at the present time, labor has a great deal to answer for. The continuation of such strikes as are in progress at the

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

THE CHEMICAL FOUNDATION —A STEP IN THE RIGHT DIRECTION

Two weeks ago in these columns we printed a somewhat lightsome article, entitled "Alles ist vorüber," the substance of which gave the impression that the establishment of the Chemical Foundation, Inc., and the acquirement by it of the German-owned dyestuff patents registered in this country, sounded the death-knell to any hope of future German competition.

We wish to correct this impression, which is not strictly in accordance with the facts. It has been pointed out in the daily press that a majority of the patents acquired, and particularly those which applied originally to the dyestuffs of quantity production—most of which are now being manufactured in this country—have already expired and are, therefore, not now operative. The patents which were filed more recently, however, and which are still in force, apply in a majority of cases to the rarer dyestuffs—the vat and indanthrene colors—very few of which have been, as yet, satisfactorily produced in this country. In actual operation, therefore, the Chemical Foundation will not be able to restrict in any way the importation of dyestuffs of the commoner sort, but will be able to exercise control over the import of the strictly fast colors.

At first glance, it might appear that very little, if any, benefit to the American industry, particularly the consuming element, could accrue from the exercise of the prerogatives acquired by the Chemical Foundation through the purchase of the German patents. It would seem that the Foundation is powerless to restrict the importation of dyestuffs competing with those which are now manufactured in this country, and that if it attempted to restrict the importation of the greatly needed fast colors it would work a very considerable hardship on the textile and other consuming industries.

As a matter of fact, this is not strictly true. It is a fact that the Chemical Foundation cannot interfere with the importation of dyestuffs on which the patents have expired by limitation, but it is not to be assumed that because they have the right to control importations of the fast colors they will, in every case, exercise this privilege. We are told by those high in the councils of the Chemical Foundation, Inc., that it will not be their policy to institute infringement proceedings against importers of German or other foreign dyestuffs, where it can be shown that these particular colors are really needed by American consumers and where the same colors are not being manufactured in this country.

Therefore, it will be readily seen that in so far as the vat and other fast colors are concerned the Chemical Foundation will be able to exercise a discretion practically equivalent to the powers which would reside in a Licensing Commission, should such a board be created by Congress. The only distinction is that their powers will be limited to the colors which have been recently patented and will not extend to the commoner colors on which the patents were filed more than seventeen years ago.

In other words, the Chemical Foundation is a step in the right direction, but it is by no means the ultimate goal. The only true protection for American dyestuffs—for our tariff has been shown to be a flimsy barrier at best—will develop when we have established a Licensing Commission similar in

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THE CHEMICAL FOUNDATION

(*Continued from page* 10.)

powers to those now operative in England and France.

The question of whether or not Germany will be able to import into this country dyestuffs of the more ordinary type such as are now being produced satisfactorily in this country, is one which only time can tell. It is the opinion of the REPORTER, however, that such will not be the case. We do not believe it possible that Germany can ever manufacture at anything like the low prices which prevailed prior to the war. More than this, it is a matter of common knowledge that many of the colors of large consumption were sold at or below cost, while the profit was added onto the more expensive and faster colors which Germany alone produced. Many of our American manufacturers are now making every effort to produce truly fast dyestuffs in this country and it is to be expected that the very near future will see remarkable developments along this line. Once we have developed a vat color industry here it will be possible through the control of importation by the Chemical Foundation to eliminate German competition on these colors, and it is extremely doubtful if the Germans, or anyone else, deprived of the exorbitant profits which they formerly made on colors of this type, can afford to sell the colors of quantity production more cheaply in this market than they can be manufactured in this country.

On the whole, the outlook for the American color industry was never more promising than at this moment. Negotiations are now under way by which Germany hopes to sell in this country certain dyestuffs in exchange for food. We are awaiting with interest the prices at which these dyestuffs will be offered. Through unofficial sources we learn that the prices will, in many cases, be from four to six times as great as those at which the same dyestuffs were sold before the war. If this should prove to be the case, there will be little doubt that American manufacturers can successfully underbid any such offers. Let us not, however, become unduly confident and relax our efforts to obtain the legislation necessary to establish a Licensing Commission. Once such legislation is passed, but not until then, can we view the future with perfect confidence.

BUSINESS BESTIRS ITSELF

(*Continued from page* 28.)

Lawrence and Passaic mills will only hurt the strikers in the end.

"I am of the opinion that if the dye manufacturers will only show a little tendency to ease up on their prices, they will find that they will not have to take any radical steps or assume any losses, for, with indications as they are at present, I am certain that the mill people will be willing to meet them more than half-way. It would not take very great concessions on their part to start things up in lively fashion."

BRUINIER JOINS DUNKER & PERKINS

A. G. Bruinier, formerly for many years president of the American branch of Kalle & Company, has become associated as a full partner in the Dunker & Perkins Company, whose main office is at 287 Atlantic Avenue, Boston, Mass., in which company he holds the title of vice-president.

Mr. Bruinier has probably enjoyed as complete and varied a career in the dyestuff industry as any of those who are now active in this field in the United States. Born in Holland, in his early youth he became associated with the German Kalle Company, with whom he was employed in various capacities until September, 1890, when he came to this country and joined their American branch in New York. In 1897 he took charge of their Boston office, which position he filled until 1903, when the American branch was incorporated and he became president thereof. This position he filled until July, 1913, when he retired and went to live in England. He returned to this country early in 1918 to become vice-president of the Dicks, David Company, which position he resigned in January of this year.

Mr. Bruinier's long experience in all phases of the industry, both here and abroad, qualify him as very few are qualified to cater to the requirements of American consumers. His association with the Dunker & Perkins Company will be the occasion for the extending by this firm of their sphere of activities to cover the entire eastern United States. A new office will be opened almost immediately at 30 Cliff Street, New York City, of which Mr. Bruiner will be in personal charge. There will also be another branch office at Paterson, N. J., in charge of Emile Coene.

DYE CENSUS FOR 1918 NEARING COMPLETION

The census of dyes and coal-tar chemicals of the United States probably will be completed shortly and made public during the coming spring or summer, officials of the United States Tariff Commission report. Statistics for the census are being gathered by the Commission, which already has published a report on the census of the industry for 1917.

This census was taken at the request of the President as provided for under the present tariff law dealing with dyestuffs and chemicals. In connection with this survey of the industry the commission has submitted its recommendation for forty-five amendments to the tariff law, aimed for the most part at elimination of the existing loopholes in the law by which foreign manufacturers can bring their commodities into this country, easily evading the obvious intent of Congress on the payment of duties.

Replies from manufacturers and users of dyestuffs and chemicals have been slow in coming to the commission, and because of this fact the important investigation, which undoubtedly will have a material effect on tariff legislation in the near future, is being hindered. Commission officials have expressed the hope that all to whom queries have been sent would promptly answer them, giving the information asked for.

The information is being gathered for the commission's 1919 Dye Census, which will have a very important bearing on tariff legislation and the amendment to the present law proposed by the commission, when the subject comes before Congress at the next session.

Many of those who have failed to reply to the commission's communication are textile manufacturers who use dyestuffs, and it was pointed out that it is to the interest of the textile industry that replies be sent in at the earliest possible moment.

Information on minor acids will be contained in another report that is under preparation by the commission, and which will be submitted to Congress for its guidance in tariff legislation. Acids which will be dealt with in this report include citric acid, lactic, oxalic, boracic, formic, gallic, salicylic, tannic, tartaric, and others.—*Daily News Record.*

DYESTUFFS FROM POISON GASES

The Chemical Warfare Service, in recognition of the aid given to it by private and commercial laboratories, is distributing samples of poison gas for experiment and imparting the secrets of manufacture, in the hope that its experience will be useful in the arts. Surely this aim should be realized in the case of phosgene.

By combining dimethyl aniline with phosgene, the German and Swiss chemists were able to make the intermediate, Michler's ketone, a silvery flake-like chemical, in which form the deadly phosgene was employed with the most convenience. From the intermediate were produced malachite green, wood green, azidine fast scarlet, auramine and its train of golden yellows, crystal violet, ethyl violet, Victoria blue, and night blue. As the names of colors are legion, tints derived from this gas seem without end.

It was noted at the great arsenal which the Government built at Edgewood, near Baltimore, that the red brick of kilns and houses was bleached, as though it had been touched by a blight. Phosgene is one of the most powerful foes of iron oxide known. The ordinary burned brick of commerce is red because of the action of heat in deepening the color of this ferric salt. Phosgene is a useful agent in taking the dark tones out of the brownish and reddish sands before they are used in glass manufacture, thus insuring a transparent, crystal ware. The whitest kind of sand is required for making lenses, and the progress of the manufacture of optical glass is being aided therefore by this gas. Before the war the glass for our spectacles and microscopes and telescopes was largely brought from Germany. The chemist even had to depend upon foreign sources for his test tubes and flasks. The increase of white sand in this country due to the use of phosgene in the arts has done much to free the chemist and the optician from overseas industrial bondage.

Phosgene, although regarded as a daughter of Germany, is one of the many offsprings of English chemistry which was kidnapped by the imitative Teuton. Sir Humphry Davy, the eminent British physical chemist, who described it as an oxydized hydrochloric acid, once believed that the potent vapor was a separate element. His view was opposed by other scientists. His brother John, when the controversy over its nature was at its height, made certain experiments which resulted in his giving the gas its status. His demonstration that chlorine and carbon monoxide combined in the presence of sunlight to produce the gas gave it the name, derived from the Greek, meaning the light-born gas.

As chlorine appears in the formula of many poison gases, the processes under which it has been made on such a gigantic scale for war purposes have had a stimulating effect on its production for the peaceful arts. There is a limited use for the extra supply of chlor-picrin, composed of chlorine and picric acid, at somewhat less than the price it cost the Government to produce it. But chlorine is always available as a basis of bleaching powders and for a myriad other uses, and honest picric acid, now relieved from war duties, can go back to its familiar specialty, producing modish shades of bright yellow for women's wear.

Chemical science has not as yet found the way to salvage mustard gas, the most deadly of the vapors which the experts conjured to the aid of the country.—N. Y. *Times.*

TO MARKET 100 PER CENT BENZALDEHYDE

Announcement has been made by the Color Company of America, Inc., 14 Cedar Street, New York, of its intention to begin the manufacture of 100 per cent Benzaldehyde under the direction of H. S. Keelan, chief chemist of the firm. A plant at Valley Stream, L. I., is practically ready to start the production of this important intermediate at the rate of 300 pounds daily, and deliveries are expected to begin early in April.

The principal interest in the announcement attaches to the fact that the company purposes to supply to the market a superior Benzaldehyde at a considerably lower price than that at which the 95 per cent grades are now selling. Recent quotations for commercial Benzaldehyde were at the rate of $1.30 per pound, while the refined product was quoted at $1.60. In view of these figures, the plans of this concern to market a grade of Benzaldehyde identical to that formerly furnished by Germany, and at the same price—$1.00 per pound—should arouse considerable comment.

Mr. Keelan declared that production would begin by working one shift, with provision made for using three to get 900 pounds per day later on, to be followed by the possible addition of another unit to the plant. When this country went to war in 1917 he left the Hooker Electro Chemical Company, Niagara Falls, where he had been engaged in research work, to serve the Government in his capacity as chemist, and it was only a few months ago that he assumed charge of the manufacturing end of the Color Company of America. He stated that the production of Benzoyl Chloride, Beta Naphthol and allied products, to be followed by Malachite Green and other dyestuffs, was a part of the company's plans for the future.

The Merrimac Chemical Company has declared a quarterly dividend of $1.25 per share.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

W. E. K.—Question—Kindly advise us who can supply commercial Tannic Acid in other than a Sumac form for mordanting cotton yarns for Basic colors. What are the usual concentrations purchased for this purpose? Does Tannic Acid offer any advantages for the above class of work over Sumac Extracts with particular reference to stainless effects giving brighter colors due to the absence of organic coloring matter than the Tannic Acid content?

Answer—There is no great advantage to be gained by using Tannic Acid instead of Sumac Extract. Sumac Extract is, however, materially cheaper for the purpose and is, therefore more commonly used. Messrs. A. Klipstein

& Company will be able to furnish you with either of the articles in question.

S.W.M.Co.—Question—We are very anxious to know here at the mill, and especially our head dyer, whether there is any Rhodamine B Extra made in this country, and if not, if there will be any made very soon; or, will there be any shipped in from Germany? If so, when do you think this will take place?

This particular dye is the only one we have not been able to get at a reasonable price, and in the color desired. We have paid as high as $85 a pound for this Rhodamine B Extra, which, as you know, is entirely out of all manner of reason.

Answer—Rhodamine B Extra was manufactured by the United Piece Dye Works at Lodi, N. J., and their former selling agents, American Aniline Products, Inc., still have, we understand, a small stock of this color on hand. E. I. du Pont de Nemours & Company are now producing this product, properly standardized, at Wilmington, Del.

Other than the above firms, we do not know of any American manufacturer who has produced this article in commercial quantities. Our inquires throughout the trade leads us to believe that the majority of the Rhodamine B Extra now being consumed in this country is of Swiss manufacture. We are advised by A. Klipstein & Company that they have been receiving it with regularity, and that they expect a new shipment in the very near future.

The market value of Rhodamine B Extra at the present time is in the neighborhood of $40 a pound.

WAR TRADE BOARD RULING ON DYE IMPORTATIONS

The text of the recently issued ruling of the War Trade Board anent the future importation of dyes into this country, is as follows:

"The War Trade Board announces that hereafter all applications for licenses to import dyes or dyestuffs must be accompanied by a statement giving complete specifications of the character of the dyes or dyestuffs proposed to be imported. A supplemental information sheet, procurable from the Bureau of Imports, Washington, or from any branch office of the board, should be used for this purpose."

Added importance is given to this announcement by the fact that it is made soon after the Chemical Foundation, which obtains titles to many of the German dye and chemical patents seized after the United States entered the war, sent a cablegram to President Wilson asking that he recommend steps which would protect the American dye industry. American interests are especially anxious that no opportunity shall be given German dye makers to regain the foothold in the industry, so far as the needs of this country are concerned, which they had prior to the war.

NOTES OF THE TRADE

With a capital of $50,000, the Tillinghast Products Corporation has been incorporated under the laws of New York to manufacure chemicals, dyes, paints and varnishes. Headquarters of the new concern will be in New York City, and the incorporators consist of George F. Tillinghast, 25 Clinton Street, Brooklyn; Robert P. Lumley. 299 Broadway, and Neven S. Lamb, 303 West Twenty-second Street, New York City.

The A. B. Svensk Fargammeindustri is the name of a new dye manufacturing company which has been incorporated in Sweden with a capital of approximately $3,250,000. The new plant will have the services of Birger Rosenquist, who was formerly a representative of German color manufacturers. The corporation will be supported by a number of existing institutions in Sweden where dyestuffs and other chemical products are consumed and sold.

The Virginia-Carolina Chemical Company has declared its usual quarterly dividend of $2 a share on its preferred stock and $1 a share on its common stock.

Business everywhere is still hesitant, says a London cable to the *Journal of Commerce*. This, the report continues, is owing to the doubtful labor outlook, although the situation is regarded as more hopeful. Peace delays and the spread of Bolshevism are also factors. Many new capital issues are awaiting sanction, among them that of the recently organized British Dyes Corporation, which represents a combination of British Dyes, Ltd., and Levinstein, Ltd., and which expects shortly to raise about $25,000,000.

The elimination of confusion in matching samples is one of the greatest benefits resulting from the existence of the Textile Color Card Association, as is shown by the fact that a few years ago some of the big textile mills produced as many as a hundred shades of navy blue alone, whereas with color standardization, but three shades are produced—light, medium and dark.

According to a recent report, trading in phenol has practically ceased for the time being, buyers desiring to await the action of the Government in disposing of present stocks before entering the market. Various estimates among dealers are to the effect that the supply of phenol now in this country is sufficient to last at least five years.

S. J. Nathan, 419 Broadway, New York, has been appointed the New York representative for the Rhodia Chemical Company, a New Jersey chemical corporation capitalized at $600,000.

With a capital of $1,000,000, the Fabric Cleaning & Dyeing Company has been incorporated at Queens, L. I., by C. S. Julien, E. J. A. Williams and C. S. Woodman.

The Universal Aniline Dyes & Chemical Company has been incorporated under the laws of Wisconsin with a capital of $1,000,000. Headquarters will be at Milwaukee, and the incorporators are H. S. Hadfield, E. J. Steiner, J. H. Killey, Bernard Cannon, Thomas T. Churchill, Glenn W. Martens and W. H. Wiltzius.

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DYES AND THE TARIFF

W. S. Culbertson Favors Forty-five Amendments Plus Special Presidential Proclamations to Prevent Unfair Competition

DECLARING his personal predilections to be unfavorable towards the adoption of measures similar to the British licensing scheme for the protection of the dye industry in this country, and offering as a substitute the forty-five proposed amendments to the Coal-Tar Chemical Schedule of the Tariff Act of September 8, 1916, backed up by legislation permitting the President to impose additional duties and prohibit altogether the importation of certain dyes and chemicals wherever an attempt to "dump" these goods manifested itself, William S. Culbertson, of the United States Tariff Commission, six days ago told members of the American Chemical Society at Buffalo that the American dye industry was altogether too diversified to warrant direct Federal supervision.

As a further basis for this belief, he pointed out that in Great Britain the firms are comparatively few and the Government is closely associated with them in the enterprise; the Canadian system, he said, although efficient, was "inflexible" and increased the burden on the consumer beyond the point necessary to protect the producer, while in the United States the problems of administration were too vast and the political considerations too uncertain to attempt a solution of the dye problem through prohibition and importation licenses. He proposed that the Tariff Commission, already authorized to investigate "dumping," should pass upon all complaints of this nature and make the recommendations leading to the proposed Presidential proclamations.

At the beginning of his address, Mr. Culbertson declared that the two outstanding general forces that operated during the war to modify and, in some branches, revolutionize the American chemical industry, were the isolation of the Central Powers which cut off their overseas trade, and the enormous demand for chemical products to be used in the prosecution of the war. "The American public," the speaker averred, "now realizes as never before that the chemical industries are in many particulars essential both in the pursuits of war and of peace."

He then recalled the dye famine which followed the last direct shipment of dyes from Germany, March, 1915, and expressed the opinion that this had proved a more potent argument for the diversification of American industries than a "flood of oratory."

"An infant industry came into being," he continued, "and thrived under the protecting influences of the restrictions on the commerce of foreign competitors. The new industry has shown some of the failings of youth, but it cannot be gainsaid that it has met the situation and that to-day the production of intermediates and dyes represents an important American industry."

The speaker then proceeded to trace the effect of the war upon many other less spectacular but highly important chemical products; the future production of these, he declared, was yet problematical, while others will remain a permanent and important part of our industrial life. War restrictions in some cases delayed development or diverted energy—the dye industry, for example, having been hampered by scarcity and high prices of raw materials, especially in the case of toluol, the crude used in the manufacture of T.N.T.

Mr. Culbertson cited a number of changes which have taken place and spoke of the closer business combination among the German chemical industries which has resulted from the war, stating significantly that these will adjust themselves more readily to normal times than will the German textile and steel industries. "The same forces," he said, "which have affected our chemical industries constructively have raised up competing firms in other countries, and an era of severe competition is unquestionably ahead."

Those portions of his address more interesting to readers of the REPORTER follow:

ADJUSTMENT TO NORMAL TIMES

"No industries, taking the world over, have been as profoundly modified by the war as have the chemical industries. Changes have taken place not only in the United States but in foreign countries. German chemical industries have been drawn into an even closer business combination than existed before the war, and they have doubtless made progress in technical research and mechanical processes. Although they will suffer from the crisis through which Germany is passing, they will adjust themselves more readily to normal times than the German textile and steel industries. In other countries the same influences which established new and expanded old industries in the United States were operating. Norway, Japan, Canada, and particularly Great Britain, have made great progress in many chemical lines and, now that the war demand has ceased, are seeking new markets for their increased productive capacity. The same forces, therefore, which have affected our chemical industries constructively have raised up competing firms in other countries and an era of severe competition is unquestionably ahead. This situation requires, in the first place, a reconsideration of measures of commercial policy, and in the second, a careful investigation of the facts.

MEASURES OF COMMERCIAL POLICY

"Let me turn your attention, then, to some aspects of commercial policy as they relate to our chemical industries. So fundamental were the changes wrought by the war that a measure entirely adequate to pre-war conditions cannot be assumed to meet our present needs. In the field of chemistry the war solved some problems, modified others, and created still others. It is peculiarly our task to face the new situation squarely and to consider the proper answers to the pressing questions before us. I am sure that you realize better than anyone else that the future of the chemical industries of the United States depends primarily upon the research work of chemists, the designs of engineers, and the organizing skill of business men. *Industries which do not show vitality and growth in these respects should not be maintained by legislation.* With this qualification, however, national policy warrants the enactment of tariff and unfair competition laws which will enable essential and desirable industries to become an effective permanent part of our industrial life. The *laissez-faire* attitude has no place in the reconstruction period.

THE TARIFF ON CHEMICAL PRODUCTS

"Among the most—perhaps the most —urgent tariff problems which Congress will be called upon to consider, fall within the chemical schedule. The reason for this is obvious. The war's effect was, as I have suggested, more revolutionary among the chemical industries than elsewhere. I wish it were possible for me to discuss a number of chemical products worthy of consideration, but this cannot be done within the limits of this address. Not all the items in the chemical schedule have an equal claim to legislative assistance. A few have none. Each should be considered on its own merits, keeping in mind the advantages of production, the availability of foreign supply, the needs of the American consumer, and the diversification and development of the structure of our industrial life. I shall speak specifically of the industry producing coal-tar products, for I regard it as a clear case deserving of legislative help.

"Before hostilities ceased, Great Britain had declared the industry producing synthetic dyes essential to her national well-being. For its protection she has made a radical departure from her traditional policy of *laissez faire* in trade. She has provided State aid for the dye industry in the form of loans and grants for buildings and research. The importation of all dyes is prohibited except under license granted by a licensing committee. No dye is to be imported which the domestic industry is able to supply or for which an adequate substitute is made in the country. I believe that such a plan has been suggested as desirable for this country. For my part, I cannot regard it with favor. In Great Britain the plan is in the very early stages of experimentation. There the firms are comparatively few and the Government is closely associated with them in the enterprise. In the United States our industry is too diversified and varied, the problems of administration too vast, the political considerations too uncertain to warrant meeting the dye problem with prohibition, importation licenses and direct Federal supervision.

"The alternative is a tariff which will equalize, with a fair margin, the conditions of competition between this country and abroad. The rise of the dye industry has given a new significance to the 'infant-industry' argument for the tariff. In many phases of research and engineering, this industry in the United States is in the experimental stage. The selling of the German patents to the Chemical Foundation, Inc., by the Alien Property Custodian is of great assistance, but we are not as yet in a position to compete on an equality with the old well-established concerns abroad. It is first necessary to determine by tireless and expensive experiment the best conditions for the manufacture of each product and to train a staff to put into effect the results of such experimentation.

"Although American chemists deserve congratulations on their success in making so many varieties of dyes, nevertheless, many important and much needed dyes are not yet being made in the United States. An encouraging sign is that the American dye industry is not slavishly following the methods of Europe. Already, American chemical engineers are installing larger units than were ever used abroad. Mechanical stirrers are replacing hand stirrers and pipe lines are replacing buckets. In the end American mechanical genius will surely bring supremacy in the design and operation of equipment. An insight into the structure of the molecule, such as comes only to a chemist after long training, is necessary to make new dyes which will surpass the products of nature in quality. The rapid progress of this new dye industry is sufficient proof that America possesses chemists of a caliber to win success in this more difficult field. The American industry, however, cannot be expected to do in four years what Germany has done in forty years.

"During its development even the advocate of free trade would admit that the new industry is entitled to legislative consideration. Assistance to the dye industry may also be justified, from a national standpoint, on the ground that the industry is essential to both our military and industrial organization. It is well known that the preliminary processes for making certain dyes and high explosives are identical, and that the machinery and technical staff of a dye plant may, with comparative ease, be turned to the production of explosives. The war has taught us also that it is not a wise policy to have our great textile and other dye using industries rely wholly on foreign sources for their dyes. Finally, I regard the dye industry as necessary to the normal development of our industrial life. Diversification of industry develops the productive power of our nation. It awakens the spirit of invention and enterprise. It calls into play latent talents. The progress of the dye industry has demonstrated how these conditions come about, and I believe that we should recognize and maintain the industry as a desirable and permanent part of our industrial structure.

Unfair Methods of Competition

"A tariff designed to maintain American industries—not only the dye industry, but others equally entitled to consideration—should be supplemented with laws carefully devised to prevent unfair attacks on them against which a tariff, unless it is prohibitive, affords no safeguard. A reasonable tariff and adequate legislation against dumping and other unfair practices go together. Unfair competition—commercial bribery, deceptive labeling, full-line forcing, and other practices—can be prevented by our courts and particularly by the Federal Trade Commission in all cases where the offending parties can be reached by legal process. It is not these cases which are grounds for concern. It is those directed by individuals in foreign countries beyond the jurisdiction of our domestic tribunals. Dumping, that is, selling in this country at a price less than that which prevails in the country from which the goods are exported, and similar practices can often be dealt with only by means of additional tariff duties or prohibition. For years our law has provided for countervailing duties to be levied on bounty-fed products which are imported into the United States. These afford protection against one form of dumping.

In the Act of September 8, 1916, a provision for a double duty, to be assessed against goods imported under a full-line-forcing agreement was enacted. At the same time an attempt was made to deal with the dumping evil. It was declared criminal to dump goods systematically into the United States with the intent of destroying, injuring or preventing the establishment of an American industry. But some additional measures are needed.

"Canada was a pioneer in the enactment of anti-dumping legislation. Her act provides that in case articles exported to Canada of a kind made or produced in Canada, if the export or actual selling price to an importer in Canada be less than the fair market value of the same article when sold for consumption in the country whence exported, there shall in addition to the regular duties be levied, collected and paid a special duty. Effective administrative machinery had been devised for enforcing this law. It is comparatively simple and in Canada has proved effective. It is, however, inflexible, and tends to increase the burden on the Canadian consumer beyond the point necessary to protect the Canadian producer.

"Another method for handling dumping is suggested by the inadequate American legislation of 1916. In order to be effective this law should be modified both in substance and procedure. At the present time it prevents only those forms of dumping wherein the intent of the foreigner is to destroy or injure, or prevent the establishment of an American industry. It should cover, however, not only such intentional unfair acts of foreign competitors, but also all selling in the United States at prices below those that prevail generally abroad. When an American producer is injured it makes no difference to him what the intent of the foreign rival is. Only the result is significant In procedure, also, this law of 1916 should be more flexible. At the present time the law makes criminal the type of dumping which it prohibits and places its administration under the Department of Justice. There are objectionable cases of dumping, however, which cannot be proved under the strict procedure of criminal law. Nor is it always possible to bring the offending party before our courts as he may be in another country.

"The criminal provisions of the law should be supplemented by a law which would authorize the President to levy by proclamation additional duties on goods which are being systematically dumped into the United States, or to prohibit their importation, in case he has reason to believe that the result will be to injure, destroy or prevent the establishment of an American industry. The law might also be made to cover other unfair practices such as full-line forcing and deceptive labeling. The United States Tariff Commission, already authorized to investigate dumping, should be designated to hear and consider complaints and to report its findings to the President for his consideration and action. A law containing these provisions would be more flexible than the Canadian method. It could be adapted in its administration to meet effectively every objectionable case.

"This power to prevent unfair practice by proclamation at the discretion of the President, together with the power of the Federal Trade Commission to prevent all unfair methods of competition done by persons who can be reached by legal processes, should provide sufficient security for American industry and prevent effectively all unfair attacks upon it."

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A. P. HOWES, Publisher
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EDISON ON PRICES

The recent advice given by Thomas A. Edison to American business men, now free from the abnormal conditions induced by the war, should be of interest to dye manufacturers and consumers alike. Mr. Edison said:

"Don't hesitate; go ahead now. The buying public is hungry for goods of all kinds. The purchasing power of the public is enormous. The only danger is the business man who thinks he is 'long-headed' and hangs back when he ought to go ahead. *The man who lets his business run down waiting for prices to reach their lowest level is likely to lose a great deal more than he gains, and the percentage is greatly against him.*"

These are good words. They come from a veteran in experience and are the product of a mind such as is given to only a few men in each generation. It is not as though Mr. Edison had never himself encountered failure. During the course of his long career he has met, at various times, with setbacks enough to discourage almost anyone; yet his own unflagging optimism and faith in the power of close application to whatever the particular task on hand might be led him to plunge with renewed energy and spirits into the struggle—with what results the world knows.

He should indeed, therefore, know whereof he speaks, for he has never lost his grip on American business affairs during the sixty-one years that he has been engaged in making his own living. And Mr. Edison says that to "sit around" waiting for the other fellow to lower his prices, the while complaining bitterly that business has gone to the eternal bowwows, is to court bankruptcy proceedings.

Many American consumers of dyestuffs are doing precisely this thing. One has only to question a few of them in order to hear a tirade against the alleged profiteering of the dye people, to say nothing of others who supply them with the raw materials used in their manufactures. Meanwhile, some are letting their businesses run down from sheer lack of exercise. They are waiting . . . waiting . . . for dye and other prices to come down—with thousands of soldiers returning from France and requiring new civilian outfits—and the retail prices of everything in the textile line jumping upward to beat Nancy Hanks. Something must be wrong with merchandising methods when makers of such essentials as wearing apparel say they cannot dispose of their goods and must, perforce, close up their mills through lack of orders.

No, that is not the trouble. They are hoping against hope that prices on materials used by them, including dyes, will come down, and meanwhile they intend to hold out as long as possible and keep things slowed up until the break comes. If this is persisted in, the break may come, sure enough, but hardly in the hoped-for way. It appears to us that it would be the part of wisdom for them to take a tip from Edison and quit malingering. It doesn't pay.

Referring to the recent prohibition of the importation of dyes into Australia, Ernest Hall, representative of that commonwealth, declared that any dyes at present on the water, or which will be actually shipped from the country of export before June 1, in execution of orders placed prior to February 26, will be admitted. It has also been made known that the report that Australia has prohibited the importation of all save British products, is incorrect, being the result of confusing an order of the Australian Government limiting the importation of dyestuffs.

THE FUTURE OUTLOOK FOR FRENCH DYE AND CHEMICAL MARKETS

By CONSUL WILLIAM H. HUNT,
SAINT-ETIENNE, FRANCE

The numerous letters received at this consulate relative to the market outlook for American-made chemicals and dyestuffs at the close of hostilities, have prompted the preparation of the following report, embodying simply a few facts noted during my interviews with divers competent persons on the subject, especially with reference to German methods of handling the chemical trade in France.

Following the example of its Allies, America and England, the French Government has endeavored to create a national chemical industry to combat the monopoly which Germany has controlled in these industries throughout the world, and to free the French textile and other trades from a particularly onerous vassalage. The Government's efforts resulted in the organization on January 31, 1917, of "La Compagnie Nationals des Matieres Colorantes et des Produits Chimiques," with a capital of 40,000,000 francs.

The financial statement showing the company's activities since its organization indicates rather the difficulties encountered than results obtained, and it is believed that the company will not be able to cope with the country's needs for many years to come, even with the aid of existing chemical industries, and that French consumers of chemicals and dyestuffs must look to America for such products.

The following facts concerning the chemical trade in France, prior to the outbreak of the war, clearly show the necessity of importing these products formerly obtained from Germany: According to official statistics, Germany exported annually to France 61,292,000 francs worth of chemical products, consisting largely of artificial dyestuffs; to the above figure should be added the value of such products manufactured in France in German subsidized laboratories, directed by German chemists, in order that German products might escape import duties and cost of transportation, and under the guise of French firms could take part in bids for Government contracts.

These German chemical works, seven in number, were established in the following French cities:

Neuville-sur-Saone.—Works of the Badische Anilin & Soda Fabrik of Ludwigshafen.

Tremblay, near Creil.—La Compagnie Parisienne des Couleurs d'Aniline, a branch of the Farbwerk Meister Lucius & Bruning of Hoechst-on-Mein.

Flers, par Croix du Nord.—Works of the Farbenfabrik Fried. Bayer & Co., of Elberfield.

St. Fons.—Works of the Aktiengesellschaft fur Anilin, Berlin products.

Montereau—Works of the firm Merck, of Darmstadt, specializing in pharmaceutical drugs.

Lyon.—"La Manufacture Lyonnaise des Matieres Colorantes," a branch of the Casella Company Works of Mainkur.

Tourcoing.—The branch of Weiler-Meer, of Urdingen.

The above-mentioned concerns acquired a preponderant situation that was consolidated by their relations with the head firms in Germany, while their products were consumed by four-fifths of the French consumers of chemicals and dyestuffs.

It was not solely by the low price of their products that the Germans held the supremacy in these industries, but also in having at their disposal a large staff of carefully selected technicians and savants, marvelously equipped for scientific research work. They applied themselves to the industrial realization of the discoveries of French chemists (the honor of having discovered coal tar belongs undoubtedly to the French chemist Bechamp) as well as their own. They exerted every effort regardless of expense to solve difficulties, and in many instances advised the substitution of one product by another, and if need be, gave the exact composition of the baths, and submitted annually carefully prepared color cards (wool, silk and wool, wool and cotton, cotton, etc.) with the proportions to be employed.

Every year they made inquiries among the principal groups of chemicals and dyestuffs consumers (silk, woolen, dyeing and bleaching syndicates, the Chambers of Commerce of Rheims, Sedan, St.-Etienne, Roanne, Louviers, Elbeuf, etc.) to learn their needs and to satisfy them.

These methods of operating require large capital, and the French chemical manufacturers, who often seek quick profits rather than returns resulting from voluntary sacrifices, do not deem it advisable to imitate the German methods. The value of such methods may be easily estimated from the fact that the Badische Anilin paid a dividend of 30 per cent in 1911, while the Farbwerk of Meister Lucius & Bruning, with a capital of 36,000,000 marks, realized a profit of 16,135,196 marks, and also paid a dividend of 30 per cent.

The secret of the German success in all commercial and industrial activities, particularly to the chemical and dyestuffs branches, seems to lie in the fact that they realize that it is preferable to personally investigate the conditions, needs and business methods in foreign markets as well as to select active agents who are thoroughly familiar with the local needs and commercial customs of the people with whom they desire to do business.

The bond of sympathy between France and America, becoming daily more intimate, the high opinion the French have of our industrial methods, the knowledge of our progress in the domain of chemistry, and the results obtained, are so many factors which will contribute to the successful introduction of the American chemical products into France after the close of the war.

HYGROSCOPIC PROPERTIES OF TEXTILE MATERIALS

By Th. Schloesing Fils

A Report Made to the Societe d'Encouragement pour l'Industrie Nationale, Paris, France.

General. Textile materials possess very marked hygroscopic properties. Exposed to the air after being dried, they become charged with relatively large quantities of moisture. The reason for their behavior in this respect is well understood; they are necessarily composed of very slender filaments, exposing a large surface and consequently calculated to promote the condensation of a large proportion of vapor.

The trade in textile materials and still more the industries which manipulate these materials have a strong interest in knowing what quantity of water the materials absorb or retain under given conditions. It is my purpose to give precise data regarding this subject. Apart from the practical side of the question, my investigations may perhaps prove of some value in the general study of hygroscopic property of materials.

The quantity of water that a hygroscopic material in equilibrium with the surrounding air contains is a function of two variables: The relative humidity of the air and the temperature. This is doubtless well known to the greater number of physicists and chemists, but is less generally known than is commonly supposed, for requests are frequently made to have the humidity of this or that substance determined without giving the value of the two variables on which this humidity actually depends. We find for example in recent books statements that silk in a dry room retains such a percentage of humidity; and the exact figure is given without any reference to the relative humidity or the temperature of the air. Now in a room called dry, the relative humidity, as well as the temperature, may vary within wide limits, causing, as we shall see, the degree of humidity in silk to vary from one to two or three fold. There are also writers who speak of the natural humidity acquired by cotton exposed to the air and state the exact degree, as if it could be determined regardless of other factors. Such writers illustrate the need of directing attention to the conditions on which the humidity of textile materials depends, and to determine those conditions.

When, therefore, an equilibrium of humidity is established between a hygroscopic material and the surrounding air, there is at each temperature a relation between the moisture in the material and the relative humidity of the air, so that a given value for the latter corresponds to a certain value for the former. It is this relation that I have studied.

Methods Employed. Following is one of the tests to be made:

The substance to be examined and the air are brought into contact until an equilibrium is reached, that is, until there is no further transfer of moisture between the air and the material. The humidity of the material and that of the air are then determined. There are several ways of carrying on these experiments: 1. Bring the air to the point of equilibrium by passing it through a relatively considerable weight of the material of which the humidity does not vary sensibly. 2. Bring the material to the point of equilibrium by exposing a small quantity of it to air having a known degree of relative humidity.

It will be sufficient for me to indicate briefly how I conducted these experiments.

I carried out the first method in practically the same way as in making earlier experiments with tobacco, which are reported in the records of the Academy of Sciences. A metal cylinder from 50 to 60 mm. in diameter, and 1.25 m. long, placed in a water-bath, which is maintained at a constant temperature for each experiment, is filled with the material to be studied. A gentle current of air is passed through the tube from top to bottom. During this passage, the air and the material reach an equilibrium of humidity; upon being removed from the cylinder, the air is divested completely of humidity in an absorbing tube containing fuming sulphuric acid, and is then passed to a gasometer where it is measured exactly. Its relative humidity is then determined from the weight of the moisture left in the absorber. The humidity of the material is also carefully determined. This humidity may decrease or increase slightly during the experiment at the upper part of the tube, which comes first in contact with the current of air; but, otherwise it does not change. The degree of humidity in the center and at the lower part of the tube is accepted.

This experiment having been completed as described, a double series of experiments are made by varying successively the humidity of the substance and the temperature. In this way the desired relation is determined for each temperature studied.

Some observations on this first method will be useful.

The temperature of the bath surrounding the materials being tested is regulated by a thermostat. and does not vary more than two or three hundredths of a degree during the experiment; the temperature is maintained uniform throughout the bath by the continual agitation of the water by a strong current of air.

The tubes in which the material is placed should not be too large, so that the temperature of inside the tubes may be the same as that of the bath notwithstanding the current of air of a different temperature.

The bath which I have used contained four tubes, which communicated with an absorber and a gasometer; this made it possible to carry on four experiments at one time.

It is necessary to bring the material to be tested near to the degree of humidity that has been determined in advance. With this object in view, a homogeneous lot of material is obtained and the humidity determined by experiment. If the material is to be dried more or less, it is spread out in an oven at a temperature of 30 deg. or 40 deg. Cent. until it has lost the determined proportion of weight. If, on the contrary, it is to be made more moist, it is exposed to humid air in an enclosed chamber, not ventilated, until the desired weight has been obtained. When brought to the desired degree of humidity, the various parts are well mixed, and it is then enclosed in a receptacle such as a glass bell, and hermetically sealed, where it is left long enough for the moisture to become uniformly distributed through the material.

In order to determine the final humidity of the materials, that which it possesses when an experiment is completed, the tubes are emptied and three samples are taken from the lower part of the contents of each of the tubes. These samples are immediately placed in glass receptacles fitted with ground glass stoppers, and which can be weighed before and after drying. The last named operation is carried on in an oven at a temperature of 110 deg. Cent., which is maintained for five or six hours because during their stay in the oven the materials are not removed from the glass cases, which are simply uncorked; and, consequently, the removal of the water is rather slow.

The second method by which the material to be tested is brought into contact with air possessing a given degree of humidity until an equilibrium is reached, is carried on in different ways. I have employed a process similar to that which Regnault described in connection with his verification of hair hygrometers. The samples to be studied are suspended in tubes tightly closed and at the bottom of which are various solutions of sulphuric acid of known strength, the latter regulating the condition of the atmosphere of which the exact relative humidity, according to the experiments of Regnault, is known. At the end of several days the humidity of each sample is determined. As the strength of the sulphuric acid solutions may have changed slightly during the experiment, the exact composition is finally determined by means of standard solutions of carbonate of soda.

I have employed both methods. The first appears to me to be preferable. It requires more apparatus, operations, calculations and time; but it is, I think, more exact, because the weight of the material tested is greater. The second method has served simply to verify the results of the first, that is not exactly, but in a general way, for the purpose of determining that there are no notable and systematic errors.—*Textiles.*

DYE MANUFACTURERS UP IN ARMS TO PREVENT DUMPING

We reprint, practically verbatim, the recent dispatch from a Washington correspondent of the New York *Evening Mail* to his paper regarding developments in the fight to protect America's dye industry from the threatened onslaught of the Hun and his allies:

Fearing that cunning Teutons will find a way to defeat the announced purpose of the Alien Property Custodian to keep German dyes out of the country, pending the conclusion of peace, American manufacturers of chemicals have determined to ask that an absolute embargo be placed on the importation of German chemicals until Congress makes provision for the permanent protection of the industry.

The ball has been set rolling by the Du Ponts, whose representatives got in touch with the Tariff Commission and with other governmental bodies concerned in imports and exports. The fact that under the ruling of the War Trade Board, which opens German Austria to American commerce, dyes may be imported, is said by the dye manufacturers to be in itself disquieting.

License Protects Patents

Importers will be provided with forms upon which they can apply for licenses permitting them to bring dyes from German Austria to the United States. These forms are such as to obligate the dealers to refrain from importing any dye which clearly infringes the patents now held by the United States, but which were formerly the property of German subjects.

It is pointed out, however, that the dyes which the Germans expect to send here by way of German Austria are made through alleged new processes recently patented at Berlin and at Vienna. It is not believed that, should licenses be obtained for the importing of such dyes, the decision of the alien enemy custodian will apply. The mere fact that dyes can be imported, if licenses are obtained, presents a peril to the trade here which the Du Ponts say should not be ignored.

Tariff Commissioner Culbertson said the duty on dyes was altogether insufficient to protect the new industry from ruinous foreign competition. In this conclusion he is strongly supported by Representative Fordney, chairman of the ways and means committee in the new Congress; Representative Mann, Representative Longworth and many others. Mr. Fordney has asked Commissioner Culbertson to assist him in the preparation of a measure designed to protect the infant but lusty American enterprise.

ENEMY WANTS MARKET BACK

"Under the ruling of the War Trade Board," said Commissioner Culbertson, "there is nothing to prevent the importing of dyes which do not manifestly infringe the patent rights of Americans. Of course, a license may be refused the importers, but the fact that it can be granted is sufficient to alarm the dye manufacturers of the United States.

"This new industry, the outgrowth of the war, should receive the support of the Government and people of the United States. There is not the slightest doubt of the determination of the Germans to recapture the dye markets of the world. They must be prevented from doing this. What kind of a campaign of camouflage they will carry on may be judged from what they have done in the past."

WILL APPEAL TO WILSON

A resolution asking the President and the inter-allied trade commission to place an embargo on the importing from Germany of dyes of every kind until the future policy of the nation can be settled, is being prepared. Even if the policy of the enemy alien property custodian is permitted to stand, it will only prevail until peace is formally declared, the dye men point out.

But in the meantime, unless an embargo is placed on this particular commodity, there is distinct danger that so much of it will be brought here as to imperil the industries which have been built up in the past four years.

Among a number of Germans sent to Fort Oglethorpe, Ga., for internment recently, were Adolph Henry Ney, a chemist once connected with the Thomas A. Edison forces; Herman C. A. Seebohm, former secretary and treasurer of the Bayer Company, and Arthur Wiener, a witness at the recent O'Leary trial.

The Onondaga Hotel, Syracuse, was the scene recently of a dinner given by the Syracuse Chemical Society and Technology Club in honor of Dr. E. S. Johnson, of the United Color & Chemical Company, Boston.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

A. G. D.—Question—What is "The dye of weld and dyer's broom"?

Answer—This is one of the flavone group known as Luteolin, or 1:3:3′:4′-tetrahydroxyflavone. Other members of the same group are Chrysin and Morin.

W. I. D.—Question—We received the working formula for the manufacture of Bismark brown, and same is now in successful operation. Will you kindly give us an outline of the preparation of Martius' yellow?

Answer—Martius' yellow is the sodium salt of 2:4-dinitro-a-naphthol, which latter is obtained by the action of nitric acid upon monosulphonic acid or disulphonic acid of a-naphthol.

C. A. M.—Question—The method which we have been using for some time, and of which we wrote you some time ago, is not giving success with all types of diazo compounds. Will you kindly explain this and send some information on the subject?

Answer—The trouble is in the fact that the aliphatic and aromatic diazo compounds are differently constituted, and hence the methods adopted for their determination are not identical. The required data will be forwarded you.

S. T. G.—Question—Under separate cover we are sending you four coal-tar crudes the names or composition of which we are no longer in possession of. Will you please identify same, the charge for which will be forwarded by return mail?

Answer—The sample marked "A" is Benzidine sulphate; "B," Nitrotoluol; "C," Monochlorbenzol, and "D," Phenylalphanaphthylamine.

H. H. K.—Question—The leaden bottom of our acetic acid retort has become badly pitted. Can you inform us as to the cause of this?

Answer — Please forward some scrapings from the interior of your retort bottom and we will ascertain what has come into contact with the lead to cause the defect mentioned. No doubt some foreign metal has become amalgamated with it.

NOTES OF THE TRADE

With an estimated loss of $80,000, the coke plant of the General Chemical Company, located at Fayette City, Pa., has been destroyed by fire.

Under the laws of California, the Anglo-California Aniline Corporation has been incorporated with a capital of $200,000. Head offices will be located in San Francisco, and the incorporators are L. M. Olds, J. R. Daniels, T. A. Keogh and J. T. Thornton and A C. Dnerr.

The American Cellulose and Chemical Manufacturing Company, Ltd., has been incorporated under the laws of Delaware with a capital consisting of 100,000 shares of preferred stock with a par value of $100 each, 150,000 shares of common stock, no par value, and an active capital consisting of 10 shares common stock. The representative of the new company is J. A. Larkin, 681 Fifth Avenue, New York City.

Recent figures reveal that just before the war Germany sold in China synthetic indigo to the value of nearly $10,000,000 a year, and aniline dyestuffs worth from three to four millions more.

P. S. Tilden, of E. I. du Pont de Nemours & Company, has been elected president of the newly organized Institute of Dry Color Manufacturers. Edward Kohnstamm has been chosen vice-president and Marcus Marks treasurer.

The Merrimac Chemical Company has declared a quarterly dividend of $1.25 per share, payable March 31 to stock of record March 22.

The Verte Color Corporation has been incorporated under the laws of New York with a capital of $25,000 to deal in chemicals, drugs, oils and colors. Headquarters will be in Brooklyn, and the incorporators consist of H. C. Ackerman, Great Neck, L. I.; J. C. Ackerman, Closter, N. J., and J. Greenfield, 58 Avenue C, New York City.

Bowman, Mell & Company, manufacturing chemists, of Harrisburg, Pa., recently sustained a fire at the plant of the company. The estimated loss has not been made public.

With a capital of $100,000, the Frostel Chemical Company has been incorporated under the laws of New York to act as manufacturing and consulting chemists. Headquarters will be in New York City, and the incorporators are K. P. Dayton, Chicago, Ill.; F. Perry, 95 William Street, New York, and W. L. Herstein, 31 East Thirty-first Street, New York.

To manufacture textiles, the Black Knitting Mills, Inc., has been incorporated under the laws of New York with a capital of $25,000. Headquarters will be located in Manhattan, and the incorporators are C. E. Black, L. A. Black and S. W. Schwartz, 131 Wooster Street, New York City.

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Remember the V and Invest!

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DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
"Circulated Everywhere Dyestuffs are Used"

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REMEMBER THE "V" AND INVEST!

"We Did Our Duty!" Must Be the Slogan of the Dye Industry After the Victory Liberty Loan Returns Are In.

ON this day, Monday, April 21, the bonds of the Victory Liberty Loan will be offered for sale to the public. The forthcoming—or as one may say, the fifth coming—loan is the last of the series which helped to make victory possible. And, although the following statement would not have been true before the first causes of all the loans became apparent, by no means an infinitesimal portion of the public which is now asked to invest in bonds of the fifth loan is composed of those occupied directly or indirectly in gaining a livelihood from the American dye industry.

Allow us to perform an introduction: Victory Loan—Dye Industry; Miss Industry—Mr. Loan. There! When you get to know each other better, we are sure that you will both find that you have much in common. The age of the loan is just about one day, and that's fairly well advanced for a loan like this one, while the age of the industry isn't much more than three years—but then, that's really rather young for an industry. The disparity of ages is not so great but that the twain cannot enjoy one another's company, and the industry will do well to make much of the loan, for it is highly improbable that it will ever meet another like it.

This is the last time that the slim but wiry old gentleman with the elongated chin whisker and the star-spangled hat will ask you to dig down into your pocket and help him out. This is the last request of this sort which your Government will make of you—but you have by no means addressed your last request to your Government. And, believe us! your Government has been a pretty good sort of a Government to you, taking it by and large, and a pretty good sort of Government to live under and to make sacrifices for, considering the fact that you get more than you give, every trip! Never mind what a lot of vociferous critics try to tell you—their mental vision may be distorted by chronic indigestion, or something, for all you know. Those who have lived under other governments which might be mentioned can testify to the truth of our statement, and to the fact that as governments go we've got one of the very best to be found anywhere.

Those who don't believe this ought to try a year or two of Bolshevik or Turkish rule in order to appreciate what they have been enjoying in the way of protection and a square deal.

When the War began on the other side, many were the outcries and lamentations which arose on all sides about the way the Government was conducting things. When War stretched out his bloody hands and began picking from among our youngest and finest, and leaving a crimson, reeking smear upon the hearts of countless others, it suddenly became the fashion for chatterers to bottle up their vaporings. Now the War has ceased—and how soon they forget! They forget how little was our suffering through that War as compared to the sufferings of France, Belgium and other nations. They forget the strength which protected them from the cruel blows which all but broke some of the stoutest of hearts. The strength and prestige of the United States Government fended off horrors which even three thousand miles of land and water could not have prevented. And the strength of the Government lies in the fact that, in *this* country at least, the Government is the people, and is backed by the people, morally, physically and financially. But greatest of all is the fact that it is backed *willingly*.

When the Fourth Liberty Loan campaign was begun, a number of periodicals, among them the REPORTER, remarked hopefully: "If the next loan should prove to be a Victory Loan . . ." And behold, here it is! What are *you* going to do about it? That is the big question. It is not what the other fellow is going to do about it, at all. Never mind the other fellow; he may be out investing his money while you are wondering about him, and thus get ahead of you. No, it is in what *you* are going to do about it; it is in what one hundred million "you's" are going to do about it, that the final answer will be found.

It will not be such an easy matter to support this loan properly as was the case with the fourth loan. *That* "went over" in a blaze of patriotic fervor. We had been getting more and more worried all summer over the probable duration of the war, when suddenly there came indications that the Germans were weakening. Hopes arose again; we determined to throw extra weight against them and finish the job with a good, lusty punch delivered straight at the Von Hindenburg solar plexus. We felt that we had the Hun wavering and near a collapse, and everyone was anxious to have a whack at him before it was too late—something of the mob spirit—who knows?—that sometimes leads men to join others who are beating down a criminal without even knowing what crime has been committed. Only we *knew*, and what is more, the punch was delivered, the Hun broke and ran, and a thrilling time was had by all. Each investor felt that he, personally, had thrown his weight against the line just at the critical moment. Each felt that he was to *see* tangible results from his effort. And each *did* see the results.

Then came the inevitable reaction. We can still feel it. Its effects are still with us, and we have scarcely yet pulled ourselves out of the glorious feeling of mental lassitude and freedom from responsibility. Therefore, this last loan —the Victory Loan—seems rather a drab, tame affair in comparison. In fact, it looks so suspiciously like our commonplace friend, Business, that many of us are conscious of a slight shrinking sensation whenever it is mentioned. Don't worry about that in the least. There will be plenty of others who felt the same way—before the loan got going. Robbed of the universal appeal of sounding trumpets and the roar of great guns, plus glowing examples of supreme sacrifice, there must be another sort of appeal to take its place. This appeal is not far to seek. It lies in the fact that there is still the bill to pay for ridding us of a menace to future generations, and in the fact that many of our soldiers are still "over there" and must be kept there until things are finally settled. And there is also the appeal which lies in any sound business move. Therefore, why not think of the Victory Liberty Loan as being exactly what it is—not a gift to the Government, nor a drain upon our personal resources, but a straightforward business proposition, and a very, very good one?

We are not going to waste time in talking about how good Uncle Sam's credit is and what a gilt-edge investment awaits those with the discernment to buy the new bonds. The man who does not know all these things by now will be heartily welcomed at any good home for the insane. We are simply going to add a few details about the present loan and then remove ourselves so as to let you think in peace.

Briefly, the amount which the Government is asking the people to lend is four and one-half billions of dollars. The original intention was to borrow seven billions—then six billions. Now that it has been decided that the Government can do with less, cannot you do likewise—for four years? By doing so, you will receive four and three-quarters per cent interest on the amount of money you feel you can do without for that time, if you buy partially tax-exempt notes, and three and three-quarters per cent if you buy wholly tax-exempt notes. Later on, if you change your mind, you can convert whichever variety of notes you own into the other. You can at any time enjoy the higher rate of interest and pay taxes on the resulting income, or you can accept the lower rate and bid the tax collector avaunt, so far as

(*Concluded on page* 12.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

THE VICTORY LOAN

Once again the Government calls upon us to support a Liberty Loan. This loan, we are told by the Secretary of the Treasury, will be the final one in the series which has made victory possible. And hence it is properly named—the Victory Loan.

We confidently believe that all factors in the dyestuff industry will support this loan as enthusiastically as they have those in the past. The time has come when our industry in particular must look to the Government for cooperation and protection. Let us demonstrate clearly that we are ready to do our share in contributing to the tremendous expenses of this war to the end that when we in turn ask for favors we may be able to feel that our own obligations have been fully met.

THE CARDS ARE BEFORE US

Out of the plannings and schemings for saving the dye industry which have seen the light since the signing of the armistice, there are just four which stand out prominently by reason of the possibilities which lie within them and the amount of discussion which they have given birth to. Much shuffling and "skinning" of the pack has resulted in four cards being laid on the table in full view of the public. It remains to be seen which card or combination of cards will be played by the industry against Germany's hand—or whether all will be rejected and a new deal called for.

The first card was turned up last fall when representatives of the industry journeyed down to Washington and, subsequent to voting that the Dye Section of the War Industries Board be discontinued after the final articles of peace are signed, asked the Board to recommend that Congress appoint a licensing commission modeled on the British scheme.

Some two months later, the United States Tariff Commission came forward with its exhaustive report on current conditions in the industry and proposed the amendment of Title V, Act of September 8, 1916, in such a way as to materially strengthen that protective measure by changes in forty-five of its vital points.

Card Number Three was flung on the table by the hand of former Alien Property Custodian A. Mitchell Palmer, whose last official act of major importance a little over a month ago was the organization of the Chemical Foundation and the sale to that corporation of 4,500 German-owned patents which had been seized during the progress of the war.

And most recent of all came the proposal of Tariff Commissioner William S. Culbertson, before members of the American Chemical Society at Buffalo, to regulate the importation of foreign-made dyes by special Presidential proclamations based on recommendations of the Commission.

And there you are. Members of the dye fraternity—and of the dye-consuming fraternity—will do well to scrutinize these four cards carefully, for it is quite likely that one of them, or possibly two, will carry their various stakes in the fast game about to commence. Each has its objectors and each has its supporters. In the case of the licensing commission plan, many of the consumers fear that it will cause hardships through placing them at the mercy of dye "profiteers," while Mr. Culbertson has declared that the industry is too diversified and too far out of the reach of Government control to render the scheme feasible. The forty-five changes to the 1916 coal-tar schedule are, according to their own originators, little better than a makeshift to bolster up the industry until a stronger form of protection can be secured. Thus far but one man, a New York lawyer, has publicly objected to the Chemical Foundation as a means of protection on the ground that the scheme will not "hold water" legally—but if this contention is true the industry will naturally have no desire to lean on a broken reed. Much of what Mr. Culbertson has told us is undeniably true, yet the Presidential proclamation substitute has already produced objectors who declare that its successful administration would be quite as difficult as would the licensing commission idea.

At any rate, whoever has the satisfaction of seeing his own belief justified, there are the four cards. They are the very best dealt thus far, and one—or two—look very good indeed. Is it possible that just before the game begins someone will deal a fifth—a veritable whale—which will so obviously be the proper play as to make hundreds wonder why it hadn't been dealt before? We hardly think so; it is rather late in the day to hope for anything so pleasing, but should such a card be produced—why then, of course, all doubts and squabblings will be set at rest and business can go back to normal.

Meanwhile, if this miracle does not happen, the best possible play looks very much like a licensing commission, backed up by the forty-five amendments. These two, in combination, can have rather less in the way of objections brought against them than any of the others. Furthermore, they are admittedly 100 per cent efficient—and that is what we are after now. It must be remembered that the Hun will not wait, and that when he comes, his strength may be a trifle greater than we anticipated. It will not do to be divided over the proper measures to take after the game begins; the decision must be made before Congress is even approached.

If a united front is visible through the portals of the House of Representatives, the dye industry stands a remarkably fair chance of getting anything within reason. If, on the other hand, there is bickering and dissension when the time comes for action, the Hun will laugh up his sleeve and Congress will rightly decide that the industry does not know what it wants and end by granting it nothing to speak of.

It is squarely up to the industry to choose its cards.

REMEMBER THE V

(*Continued from page 7.*)

your three and three-quarters per cent is concerned.

The higher interest notes are exempt from State and local taxes, except estate and inheritance taxes, and are exempt from normal rates of Federal income taxes. The notes which bear the lower rate are exempt from all Federal, State and local taxes, except estate and inheritance taxes. The latter are to be issued later on. All notes will mature in four years, with the Treasury reserving the privilege of redeeming the notes in three years should this be feasible.

From to-day until May 10 the notes will be on sale. Oversubscriptions will be rejected. After May 10 your last chance to invest in a good business proposition will be gone—and your last chance to help the Government which protected you will be gone.

Think! This is the last call upon the people for their temporary financial assistance, Secretary of the Treasury Carter Glass tells us. In the years to come, if you now withhold that assitance, will you feel any better about it than if you had shirked your duty on the other loans, when you were in imminent peril of ultimate ruin if the Hun was not halted? Four years is not a long time. And don't pay any attention to the man who cannot afford a hundred-dollar bond and whose "pride" won't let him be caught taking a fifty. He isn't worth bothering about. The loan is "put over" by the small investor—millions of him! If you can't be one, for the love of common manhood, be the other! Can you afford to be caught not taking *any?* It is the "mites," not the millions, that count.

When the time comes, the dye fraternity will ask Congress for one or more measures referred to on another page. Would that not be a fine time to point to the dye industry's portion of the Victory Liberty Loan and be able to say, "We did not shirk; we did *our* duty!"

You have a last obligation to dispose of. Don't be side-tracked by the skulkers. Remember the "V" and INVEST!

THE FUTURE POSITION OF NATURAL DYESTUFFS

By Dr. Edward M. Chapin

On the basis of the data of the past, the study of natural dyestuffs should lead to new and important developments in dyestuff chemistry and to results of high value to industry.

Just prior to the present war, scientific thinkers were turning with ever greater frequency and deepening interest to the study of natural products; indeed some were even so bold as to state that the trend of all the scientific development of the past half century was to bring chemical science in humility to learn of Mother Nature.

Into the midst of this peaceful and reasonable development ruthlessly came the world war with its quick dislocations and disturbances. At first it was fondly imagined that these would be only for a short time and that somehow, though nobody could tell how, in a few months or at the most in a year, the war would be over and supplies of dyestuffs would again come from Germany as heretofore, and chemical science and technics would again take up their orderly development beginning at the point at which they stood before the war. This, however, was not to be. The war continued with an ever-widening grasp and intensity, dragging ultimately our country, our industries and our science into the frightful vortex.

Natural Dyes Saved the Day

A most significant chapter of American industrial history occurred during what has been called the dyestuff famine period of 1915-16, before the American artificial dyestuff manufacturers had reached the volume production and when supplies of synthetic dyestuffs in the country were either low or exhausted. It was predicted freely that for lack of synthetic products the mills of the country would be forced to shut down, industry would stagnate, and thousands upon thousands of workers forced into idleness. The natural dyestuffs saved the day. Natural dyestuffs were used for all sorts of purposes. Results were, as a matter of course, good, bad and indifferent. With experience and improved methods of application, superior results were secured. The prophecy, that for lack of artificial dyestuffs, the mills would be forced to shut down, has long been discredited; but this dire catastrophe would have occurred if it were not for the yeoman services performed for American industry in the critical period 1915-16 by the natural dyestuffs.

It has been a matter of surprise and even of some incredulity to many chemists that the natural dyestuffs were able to perform this notable service. The reasons are not far to find. So much more work has been done on the study and the development of synthetic products, there were so many more synthetic products of such varying and wonderful properties, these products had been so widely, assiduously and cleverly advertised, and it was such a source of pride and gratification to try to improve on Nature, that the majority of chemists confined their attention solely to synthetic products, and knew nothing about natural dyestuffs and the possibilities in industry from their scientific application to fibers and materials.

As a matter of fact, even just prior to the war, more than one hundred thousand tons of dyewoods were used annually in American industry. These products were used in spite of the unwearying efforts of an aggressive propagandism to displace them with synthetical products and used because the results from the natural dyestuffs were more economical or superior.

These unrivalled results from natural dyestuffs were due to certain definite chemical groupings or complexes, or to certain special methods of their application to materials and fibers.

Products Most Serviceable

Among the natural dyestuffs that have performed notable special services in the past few years and that were in considerable use prior to the war may be mentioned logwood and hematine, fustic bark or quercitron, flavine, hypernic, archil or cudbear, sumac, catechu or cutch and gambier. During the war osage orange has been added to this list.

The results from natural dyestuffs that are of special value to industry may be best illustrated by a consideration of the best known and most prominent of the natural dyestuffs, logwood, as it is called.

Logwood enjoys unique distinction in dyeing black on materials and fibers. It dyes wool, silk, cotton, leather and a great variety of fibers and materials. It is the most generally all-around useful dyestuff for dyeing black. It is also used for the weighting of silk.

Logwood produces on wool a particularly handsome and fast black. The logwood effects cannot be equalled with artificial substitutes. It has been the despair of the artificial color chemists to secure one synthetic product combining these desirable properties.

In addition to these tinctorial superiorities on wool, logwood possesses other properties that are noteworthy. It is a friend to the colorist under good and adverse conditions alike. Such cannot be said in the same measure of the artificial substitutes for logwood. Under artificial light the handsome logwood black does not lose its beauty, but, on the contrary, retains its rich, pure tone and, if anything, is intensified in brilliancy and richness. Artificial substitutes for logwood do not stand artificial light as well as logwood; indeed, some lose their daylight tone altogether, becoming dull or brown.

Utility of Logwood

If these facts are true, why, asks the intelligent inquirer, has logwood ever been displaced at all on woolen and worsted materials? Among various reasons that may be given there is one above all others that is peculiarly cogent to modern business temperament. Compared with top-chrome blacks and acid blacks, the dyeing with logwood takes more time.

The production factor on silk, strange as it may seem, is in favor of logwood. Prior to the discovery of the value of logwood for the weighting and dyeing of silk, processes in vogue were most tedious. A little over a decade ago Dr.

Heermann discovered that these processes could be greatly shortened and improved by the use of logwood.

Logwood seems to have a biological relationship to the silk fiber. The silk fiber will absorb 200 per cent of its own weight of logwood. The volume of the silk in the process is considerably enlarged, and the durability of the silk and its resistance to wear and tear are improved. This important discovery has been utilized in the past years on a large scale by the silk dyers of the world, and has created a veritable revolution in the silk industry.

The various synthetic top-chrome and acid blacks possess no such biological relationship to the silk fiber, and accordingly are utterly incapable of producing these special results so highly prized by silk people.

An erroneous impression has prevailed in chemical and trade circles that logwood blacks are not fast; in particular are not fast to light. Logwood blacks properly dyed are of excellent fastness to light, fulling, boiling in water and the principal mill and service requirements considered in the choice of a fast dyestuff.

Toward strong acids as hydrochloric and sulphuric acids, and toward chlorine, logwood blacks are not fast. This prevents their use on cotton where subsequent cross-dyeing with strong acids or subsequent bleaching is required, but has no effect on their use to color a vast array of materials and fibers for numerous other purposes in the arts.

Extension of Uses

The elaboration of the use of logwood in the dyeing of leather, the dyeing and printing of cotton, and the dyeing of hair, wood and various other fibers and materials would push our paper beyond prescribed limits. So, too, with the exposition of special results obtained by the use of other natural dyestuffs.

The unique properties that distinguish logwood for black dyeing find their parallel for yellow dyeing in fustic, osage orange and quercitron. Catechu or cutch produces on cotton a rich reddish brown of extraordinary fastness.

It is of interest to note in passing that the yellow natural dyestuffs and cutch are being most extensively used in the dyeing of the olive drab shade on various of the woolen and cotton fabrics for the army; and that these results, when properly dyed, stand the prescribed tests of the Quartermaster's Department satisfactorily.

We have now briefly reviewed certain fundamental facts relating to natural dyestuffs. A careful consideration of these facts will show that the study of natural dyestuffs will contribute materially to our fund of exact knowledge and consequently to the further development of industry. Such study will call for the utmost of energy and resourcefulness from the devotees of pure science and of scientific dyeing.

It is not too much to hazard the prediction that if we will thoroughly investigate these remarkable organic compounds and complexes, formed within the chemical laboratory of nature, we shall witness the dawning of a new era in pure and applied chemistry.—*Journal of Commerce Annual Chemical Review.*

FOREIGN INQUIRIES FOR DYESTUFFS

(A)—A firm in Italy desires to secure an agency for the sale of industrial machinery, woven ware, leather, hides, footwear, dyes, chemical products, etc. Correspondence may be in English. References.

(B)—An agency is desired by a man in Italy for the sale of general merchandise, preferably aniline colors and agricultural machinery. Terms, cash or 30 days' credit. Correspondence may be in English. References.

(C)—A man in Mexico desires to be placed directly in communication with manufacturers with a view to purchasing anilines, bichromates, hyposulphites, bisulphites, sulphates of copper, etc. Price lists and other information are requested. References.

Further particulars may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, D. C., or any of its branches, by referring for (A)—to File 28678; for (B)—to File 28820, and for (C)—to File 28710. Applications for details of more than one of the above inquiries should be made on separate sheets.

Chinese trade, so the indications are, is beginning to sit up and take notice of the American dye industry, and is gladdening the hearts of domestic manufacturers with demands for all varieties of standard colors.

PARTIAL TEXT OF BRITISH DYE EMBARGO

The wording of the so-called British "embargo" on dyestuffs, which was proclaimed February 24, forbids the importation into the United Kingdom of "all derivatives of coal tar, generally known as intermediate products, capable of being used or adapted for use as dyestuffs or of being modified or further manufactured into dyestuffs; all direct cotton colors; all union colors; all acid wool colors; all chrome and mordant colors; all alizarin colors; all basic colors; all sulphide colors; all vat colors, including synthetic indigo; all oil, spirit and wax colors; all lake colors; and any other synthetic colors, dyes, stains, color acids, color bases, color lakes, leuco acids and leuco bases, whether in paste, powder, solution or any other form." An exception is made in favor of goods imported under license, as in the case of other import prohibitions.

BRITISH DYE INDEPENDENCE

Great Britain is now wholly independent of foreign sources of supply as regards the dye industry, according to C. Basil Barham, in a recent interview. This state of affairs, he says, has been brought about by the discovery of a method of making diphenylamine on a commercial scale, this being the tenth of the fundamental intermediate products which British Dyes, Ltd., set itself out to produce. Mr. Barham says further:

"In connection with the manufacture of this intermediate a difficult problem in chemical engineering had to be solved. The successful production depended on the use of a special kind of heating appliance. As this type of plant was but little used in Great Britain before the war, continued experiments were necessary in order to arrive at the correct form. This work has now been successfully carried to completion, and the company has installed a series of these heaters sufficient to supply this intermediate in quantities that will enable us to produce the resultant colors to an amount that will fill the requirements of this country and the colonies. This last intermediate is perhaps in itself not so commercially important as some of the others, as the range of colors dependent upon it is comparatively small. It includes, however, such largely used and important dyestuffs as Indian yellow, a particularly useful orange and a favorite and richly tinted yellow. The achievement is one of the finest in the history of British manufacture."

Mr. Barham declares it was absolutely necessary to the British industry that the Government should give some tangible assistance to the industry and assume some form of of responsibility which will enable them to give to the dye industry that the products required should be forthcoming at a workable price.

NOTES OF THE TRADE

Nearly $4,000,000 worth of dyestuffs and chemicals were purchased and imported in 1917 by United States concerns from St. Gall, Switzerland. This city, which is located about 100 miles from Basel, is one of the largest color and chemical manufacturing cities on the continent, and at present enjoys the distinction of exporting more products of this nature than any other city in Europe.

To act as manufacturers' selling agents in textiles, shoes, wearing apparel, etc., a company known as Products of American Industries, Inc., has been incorporated under the laws of New York with a capital of $25,000. The head office will be located in Manhattan, and the incorporators are Henry P. Adams, Daniel G. Adams and M. G. Adams, 1871 Seventh Avenue, New York City.

Cohen & Benowitz, Inc., which was recently incorporated under the laws of New York, will act as commission merchants and jobbers in textiles and woolen goods. The capital of the concern is announced as $20,000, and the incorporators are Charles Cohen, Abraham Benowitz and H. Goldstein. The firm will conduct business in New York City.

Imports of cotton cloths in January were 1,576,813 yards, compared with 2,779,876 yards in January, 1918. Imports of linens in January were 647,051 yards, as compared with 2,506,519 yards in January of 1918, while the January imports of wool amounted to 28,140,834 pounds, which is some 20,000,000 less than this monthly total of the preceding year.

Mr. Marion Speiden has recently joined the sales organization of the National Aniline & Chemical Company, Inc. His duties will bring him in touch with several departments.

The Hotel Astor, New York City, will be the scene next Saturday night of the annual banquet of the Textile-Upholstery Association of America. Senator Penrose, of Pennsylvania, will be the guest of honor and will address the banqueters on "Industrial Reconstruction."

Baker & Kaplan, formerly proprietors of the Baker Silk Company, Paterson, N. J., have dissolved partnership, and arrangements have been made whereby each partner will acquire the broad silk plant which formerly bore his name.

Plans are under way for the Third Southern Textile Exposition, to be held May 5-10 at Textile Hall, Greenville, South Carolina. The Greenville Textile Show has been made a permanent institution, of which F. M. Burnett is manager.

A modern cotton-spinning factory, according to a recent report, has been placed in operation in Buenos Ayres under the name of Compania Hilandera Argentina. The concern is capitalized at $255,000, and will manufacture two- and three-ply yarns, average size No. 10, using cotton ring-spinning machinery with a capacity of 1,000 kilos daily. The equipment for this factory was the first of its kind ever ordered from the United States for this locality, and is valued at $100,000.

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THE BRITISH EMBARGO

How It and Its Modifications Work Smoothly for the Good of All Concerned—An Excellent Example for America to Follow

TO those whose avocation and principal indoor sport has been the discovery of subtle, sinister motives behind each fresh action on the part of England with regard to her imports from this and other countries, the news of the temporary modification—since revoked—of the so-called British "embargo" must have come as something of a shock. Although the information is no longer, strictly speaking, "news," nevertheless it is to marvel upon realizing that no one scented an ulterior purpose leading to the ultimate confounding of the American industry in this apparently reasonable action.

As a matter of fact, England is singularly gifted in knowing just how to administer her industrial affairs in such a way as to gain the maximum good for herself while incurring the minimum amount of displeasure on the part of those whom her measures happen to hit. When Great Britain announced that she purposed to license imports of many commodities, including dyestuffs, there were some hearty howls lifted from several quarters in the daily press, and among some of the manufacturers and brokers of dyes. Other organs, including the REPORTER, took the view that England had acted quite within her rights and that our cue was to follow suit by duplicating as nearly as possible the British licensing scheme in this country. For it is perfectly obvious to all but victims of popular hysteria that both measures would be applied not with the idea of injuring anyone else's industry—even Germany's—particularly, but simply because it has been recognized, in view of what took place during the first two years of the war, that a self-contained coal-tar chemical industry is an essential to the future welfare of any country.

The modification of the import prohibition, as applied to dyestuffs, provided that until further notice general licenses would be granted for the importation of *all* dyestuffs and other products covered by the prohibition that were of bona fide French, American or Swiss origin, and that it would not be necessary, for the time being, to obtain licenses in respect of individual consignments proceeding from these three countries. It was further provided in the modifying measure, however, that as the domestic English manufacture developed, the modification itself would be further modified so that in the end only such colors and intermediates would be allowed to be imported as were deemed to be essential.

This meant, of course, that the freedom allowed was to be only temporary, and that eventually the British "embargo" would—and has—become exactly as its most vociferous detractors said—in everything except its results. The principal objections arose from two camps which included those who saw in the embargo an unfriendly action on the part of our English cousins, and those who feared that the example set this country would lead to similar legislation with the result that consumers of dyestuffs would suffer from prices jacked up to unheard-of altitudes. This, of course, is all wrong, and in the very words of the most "threatening" part of the published modification may the best answer to both classes of objectors be found.

There is very good reason for the temporary leniency in the administration of the British licensing scheme, and that reason lies in the fact that England is not yet able to produce many of her most important dyestuffs as cheaply as they can be sold there by American manufacturers, nor has the production of England yet reached that stage where it can satisfactorily supply her vast textile industries with the range of shades necessary.

There have been no protests as yet from British dye consumers—or if there have, they were most carefully covered up. And since it apparently works no hardship on them, there is no reason why it should have any unpleasant effects here, provided that it is administered in a like manner. One of the chief arguments for the creation of a licensing commission in this country is the fact of its extreme flexibility. If we are shy on certain colors here, or our dye manufacturers are charging too strenuously for their wares, a licensing commission would give them no protection. It would permit consumers to buy from anyone they pleased, and at the best prices they could obtain. On the other hand, when the American manufacturer shows himself competent to give full value for his money, judged by American standards, or to supply needed but difficult shades, he is protected from the "dumping" manoeuvres which are sure to be employed by our late suppliers of colors.

What could be more ideal! The consumer is shielded from high prices and the manufacturer is shielded from low-down tactics. The consumer is assured of an adequate supply of colors from one source or another without having too severe a tax upon his patriotism, and the cold-hearted, grasping manufacturer is kept in order by the constant knowledge that he will be turned out to struggle for his daily bread in the face of some capable competition in case he oversteps the bounds of commercial propriety.

In the case of those who are looking for hidden evils in the action of England, the most casual study of the wording of the measures designed to protect her dye industry should at once make it clear that England seeks only to guarantee herself the future possession of a self-contained and flourishing dye industry; if other nations feel it necessary to similarly protect themselves, England has no means of preventing them, nor would she be greatly interested in doing so if she could. No, she merely recognizes that she wants no dependence upon anyone else for her dyes—and explosives—and she at once takes the simplest and most logical means of accomplishing this. If the incoming Congress can only be induced to act as easily and with as little fuss and feathers with regard to our own industry, we shall have reason to be thankful.

As was the case with our Tariff Commission the British Commissioner for Dyes, Sir Evan D. Jones, submitted to the British Board of Trade as complete a census as possible of the synthetic dyestuffs imported into the United Kingdom in 1913. This was done as a preliminary to restrictive action. The census was compiled by a special committee from reports furnished by representatives of British importers, and the figures were classified from the dyers' rather than the dye manufacturers' standpoint, the colors being grouped according to their dyeing qualities. The census serves, among other things, as a useful guide to British color manufacturers in estimating the requirements of the color-using industries as indicated by the pre-war consumption, and also enables the authorities to see exactly which colors are in demand and which were not being made, or made only in insufficient quantity, so as to determine whether any special steps were necessary to stimulate production.

The census shows the enormous number of colors used of the same type, differing only in purity, shade, or strength. There are, for instance, 85 distinct marks of methylene blue, 103 nigrosines, 93 soluble blues and water blues, and 155 methyl violets. The committee considered that this multiplicity was in most cases unnecessary, and it suggested that such redundance be avoided in the future, and that this would tend toward saving in the cost of production. No fewer than 10,000 colors were enumerated in the census, but it was explained that the same color was in many instances produced by several manufacturers, and many colors of identical composition had distinctive names given to them in order to associate the color with the firm manufacturing it. An example was given of nine names given by different German manufacturers to the same coloring matter.

The imports of synthetic colors in 1913 were summarized as follows:

	Pounds
Direct cotton colors	6,976,435
Union colors	115,794
Acid wool colors	5,223,101
Chrome and mordant colors	6,477,065
Alizarine	2,467,489
Basic colors	1,599,074
Sulphide colors	3,923,483
Synthetic indigo	3,830,483
Vat colors	588,445
Oil, spirit, and wax colors	42,253
Lake colors	1,082,079
Intermediate products	7,467,795
Unclassified	277,872
Total	40,071,368

The above figures do not, of course, indicate the extent of British dye requirements; nevertheless they form the basis of an interesting comparison between British and American dye conditions. Where England imported some 40,000,000 pounds, we, in those days, bought nearly 60,000,000 pounds—all of which we now make here at home. Obviously, we have come come further than England in the matter of manufacturing dyes, but we have been less handicapped by the war. Yet, we are far from secure even yet, and our domestic industry needs measures patterned after the English manner of insuring a continuous growth.

Another interesting phase in the dye activities of England and other countries recently manifested itself when an American firm, applying for a license to export dyes to Italy and failing to get it, wrote Secretary Redfield that they had been advised by their agent to make shipment to Italy by way of England, from which a license would not be required.

Mr. Redfield, in his response, stated that the import license was required for shipment of dyes to Italy under an order adopted some nine months ago under which the importation of all classes of goods on private account into Italy is prohibited except under license. A special arrangement was made with Great Britain, however, the Secretary continued, whereby articles other than luxuries might be admitted from the United Kingdom without license.

"This may be taken to constitute discrimination against goods from the

(*Concluded on page* 9.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

ECONOMICAL PRODUCTION AND DYESTUFF PRICES

When the question of whether or not American manufacturers will be able to compete with the Germans after competition is once again restored is considered, it is interesting to observe what at least one other country—England—has accomplished in the way of producing dyestuffs at reasonable figures.

We have been informed from various sources, which we believe reliable, that at the present time and for some time past twenty per cent Alizarine paste, which is the basis of turkey red, has been selling in England at 18 cents a pound. This compares with the pre-war price of the German product in this country of 14 cents. It is very questionable whether the Germans themselves could produce this product now for a price as low as that at which the British manufacturers are selling it.

If it is possible for the British to manufacture so economically, there would seem to be no good reason why we cannot do as well. Practically the only important factor in which our manufacturers are handicapped as compared with Great Britain is the item of labor, and in this respect there is no doubt that the British, and in fact all European nations, have a tremendous advantage. There is no question but that labor in America is altogether too highly paid and too arbitrary. All manufacturers recognize this fact, but as yet there has been no satisfactory means evolved of bringing labor costs to their proper level. A European manufacturer pays a reasonable price for ten hours of labor and gets it—in America we pay unreasonable prices for ten hours' labor and get from six to eight. This, of course, is a question which affects all our industries to just as great an extent as it does the manufacture of dyestuffs and is, probably, the most important difficulty with which our manufacturers in all lines will have to contend if they wish to compete on anything like an even basis with foreign-manufactured goods.

To return to the comparative prices of dyestuffs, it is interesting to note that an American price list of one of the German firms, of twenty-five years ago, shows, for example, that a certain Alizarine blue was selling at that time for 24 cents a pound. Fifteen years later when the Alizarine colors were on the free list in America but after the formation of the German dyestuff combination, the same color was quoted at from 85 cents to $1 per pound, and during the war the same product sold, in some instances, as high as $25 a pound.

The difference between the original price of the German product, 24 cents, and its later pre-war price of 85 cents, was, of course, due to nothing in the world but price agreement between the previously competing German companies. It is not likely that anyone can ever again manufacture for anything like the lower price mentioned, but it is quite within reason that we can produce colors profitably at the prices to which they were arbitrarily held by agreement among the German firms.

In regard to the British manufactured Alizarine paste mentioned above, it is worthy of note that Great Britain will not permit the export of any of this product where it will be used by textile manufacturers who might compete with the products of British looms. Thus it will be seen that unless we can produce Alizarine and other necessary colors at a price approximating that at which they are produced in Great Britain, our textile manufacturers may be compelled to compete in this country with British-made goods, dyed with

British dyestuffs which are sold to the British textile manufacturers at prices far lower than those which our American dyestuff manufacturers can meet.

All of the above means only one thing, and that is, that American dyestuff manufacturers must concentrate from this point forward on the question of economical production. It is not enough that we develop processes for the manufacture of the necessary colors, but that these processes must be so efficient as to enable us to compete not alone with Germany, but with British and other of the newer dyestuff industries. The task may seem very large but there is no doubt that if our chemical engineers are put seriously on the job, they can develop ways and means of producing the necessary products at prices which will enable our textile and other manufacturers to compete successfully with foreign-made products.

THE BRITISH EMBARGO

(*Continued from page 7.*)

United States," Mr. Redfield wrote, "but the situation as regards imports into Italy from Great Britain is quite different from that affecting imports from this country. The commerce between those two countries is more nearly balanced, and Italy is able to export to Great Britain quantities of goods sufficient to pay for the imports received. On the other hand, shipments from the United States to Italy have been so enormously in excess of exports from Italy, that it is necessary to restrict imports into Italy to the articles of immediate necessity. Not only are the exchange conditions very unfavorable in Italy, but also it is necessary to promote economy as far as possible.

"As soon as conditions are more nearly normal, the Italian Government will doubtless be willing to remove the restrictions upon imports of American goods. For the present, however, it is hardly possible to make official representations as long as there is no discrimination against particular classes of goods from this country.

"The British Government has recently placed a prohibition upon the importation of foreign dyestuffs. This has been temporarily suspended as regards dyes from the United States, but it is to be expected that the prohibition will shortly go into force. For that reason it is very inadvisable to attempt to ship dyestuffs to Italy by way of England."

Altogether, then, it may readily be seen that England is not overlooking any bets, and that she is quietly but firmly determined that her dye industry and her dye consumers must both be protected. Of the four proposed methods for bringing about the same happy condition in this country, outlined in these pages last week, the best and most workmanlike combination appears to be a licensing commission, backed by the Tariff Commission's forty-five amendments to the Act of September 8, 1916.

We should be overjoyed to see someone come along with a better and simpler means. Meanwhile, the above measures are surest and involve less legislation and consequent bickering than any others now under consideration—except, of course, the prosecutions for infringement under the 4,500 patents sold to the Chemical Foundation, which may not, after all, be a trustworthy hope to lean on.

What is wanted now is a definite agreement among dye manufacturers and consumers, followed by a definite request as soon as practicable after the new Congress opens shop.

Tell it to Congress:
"We did Our Duty!"

PROJECTED INVESTIGATIONS OF THE TARIFF COMMISSION

In the speech of William S. Culbertson, of the United States Tariff Commission, a portion of which directly affecting the dye industry was printed last week, further interesting facts regarding projected governmental investigations and plans for continuing the work of the commission in protecting our industries were made public. We herewith offer certain of these as an outline of what may be expected in future and to aid in overcoming some of the hostility certain to arise in some quarters through lack of proper understanding of the ultimate disposal of the information sought. We quote:

For many articles, industrial surveys will provide adequate information for the tariff maker. Policy and sometimes the amount of tariff if any is to be levied, can be determined from the careful analysis of the chief facts of production, trade and consumption. In the case of other articles, however, these surveys are not sufficient. A more detailed investigation is necessary, particularly on contentious articles. The Tariff Commission is, therefore, taking steps to investigate domestic costs and domestic and foreign prices of certain chemical products. We realize that the problem of coal-tar products—to take a specific case—is not completely solved by showing, as we have done, how the present law may be made more effective. Congress may think that conditions require a revision of the tariff rates. Costs and prices have played a large part in American tariff controversies. I consider the comparison of domestic and foreign costs or of domestic costs with foreign prices of primary value in tariff making, for they enable the rates to be made to equalize effectively conditions of competition between the United States and abroad. The investigation of domestic costs alone, even, has its value. It did not seem wise to the Tariff Commission to undertake during the war extensive cost investigations. Conditions were abnormal and the results would have been of doubtful significance. We are now, however, beginning to make plans for analyzing the basic facts of certain industries by studying costs and prices. Unfortunately, it will not be possible, except in rare instances, to ascertain foreign costs. Although desirable, foreign costs are not indispensable. If we have domestic costs properly subdivided into raw materials, labor and overhead expenses, including depreciation, they and known prices of raw materials, wages and other expenses in foreign countries, may be used as a basis for estimating foreign costs. Then, too, the value in tariff making of a comparison of domestic *costs* with foreign *prices* must not be overlooked. It is the foreign *price,* not the foreign *cost,* with which the domestic manufacturer has to compete. But we must know the domestic *cost* in order to know what tariff is necessary to enable the domestic industry to compete on an equality and stay in business. A study of domestic costs will also be valuable in determining the proper relationship of tariff duties on allied products. For example, a cost study will assist in determining the relation between the duties on intermediates and dyes, and it may disclose the necessity of dividing these products into subgroups carrying different rates of duties.

The appropriation of the Tariff Commission is at present on a war-time basis. We hope and expect that after July first funds will be available which will enable us to begin cost and price investigations on a fairly comprehensive scale. Much preliminary work, however, may be done in the meantime. It is here we need your counsel and cooperation. You will, of course, appreciate that it is not sufficient to secure merely *total* costs. It is essential to subdivide material, labor and overhead costs. Considerable detail even in the cost of materials is essential in many cases where the raw material is an imported article, in order to determine the proper relationship between the duty on the raw material and the finished product. Citric acid is a case in point. Citrate of lime from which the acid is made comes almost entirely from abroad. The tariff duties on these two related products can be determined satisfactorily only when we know the yields of citric acid from a unit of citrate of lime and also the portion of the total cost charged to raw materials. In many cases, such as the manufacture of caustic soda and chlorine, joint products are secured from the same raw materials and operations. The ratio to be used in subdividing the joint costs to the different products is largely arbitrary. We have found that different companies use different ratios. If one of the joint products is sharply competitive in the international markets and the other is not, the ratio used in determining the cost of each becomes of great significance in tariff making.

Still another perplexing problem is the best way to bring the results of our investigations to the attention of Congress without disclosing publicly the cost data of individual manufacturers. We hope to work out a plan of stating the unit costs in the form of averages or ranges without disclosing the figures of individual companies. A general statement may also be made showing the fraction of the total cost chargeable to labor, materials and overhead. The selection of the products to be investigated constitutes another problem. We are agreed that a representative list of intermediates and dyes should be studied, but which particular intermediates and dyes are to be selected is still an open question. Other products for detailed investigation will probably be chosen from this list: barium salts, thorium nitrate and incandescent mantles, citric acid, caustic soda and chlorine products.

The Tariff Commission is fully conscious of the difficulties which lie in the path of the proposed investigations of costs and prices. I have suggested only a few of the industrial and accounting questions involved. We need—we invite the co-operation and active assistance of the chemists and manufacturers whose closeness to the problems makes their advice invaluable.

Let me, in conclusion, emphasize the pressing importance of the situation in which the war has left the American chemical industries. That it be met promptly and adequately is necessary not only because men have invested, chemists have investigated and labor forces have been assembled and trained, but also because many of these industries are essential, vital parts of our industrial life. I have endeavored to make clear the measures of commercial policy which should be adopted and the lines of investigation which should be pursued. The determination of the former, I need hardly state, rests with Congress; the latter is the peculiar task of the Tariff Commission. You may be assured that so far as we can we shall do our part in this important work of reconstruction.

Under the laws of Delaware, the Cherokee Chemical Corporation has been incorporated with a capital of $3,000,000. The incorporators are A. J. Kingsbury and Harry McDaniel, Jr.

GERMAN COLOR FILTER OUTRIVALED BY AMERICAN CHEMISTS

Another department of color chemistry in which American researchers, working from a small sample of the German original, succeeded not only in reproducing the latter, but in vastly improving upon it to the ultimate detriment of the Hun armies, was revealed at the recent Aeronautical Exposition held in Madison Square Garden, New York City, and described by Captain A. K. Chapman, of the Eastman Company, for a representative of the New York *Evening Sun,* which says:

"Few of the visiting multitude realize what a triumph for American scientific methods is involved, nor how the necessities of the aerial photographic section of the United States Army have developed the manufacture of high-class dyes and optical glass, which are of immense value in the international commerce and industry now opening before us with peace.

"Fewer still realize how these great secrets of nature were dragged into the service of the Stars and Stripes, not on the battlefield, but in the calm quiet of scientific laboratories thousands of miles behind the scream of shells and the rat-tat-tat of machine guns. In great industrial plants, where the facilities of scores of great manufacturing organizations were promptly and proudly laid upon the altar of patriotism, were evolved the formluæ and working plans which shattered into bits the propagandized fallacy of invulnerable German supremacy in all things scientific."

Before the war, Capt. Chapman, or Dr. Chapman, as he is called in civil life, was a specialist in optics and chemistry, especially as appertaining to photography. He accepted a commission in the army, surrendering his private work with the Eastman company, and devoted all his time to the perfection of the color filters and orthochromatic and panchromatic films and plates which meant so much to Uncle Sam's winged observers.

The *Sun* quotes Dr. Chapman as follows:

"To any one who makes his first trip in the air one thing is immediately and surprisingly noticeable: On the clearest days objects on the earth begin to blend together and there is usually a blue haze of varying density, not observable from the ground. This haze and the lack of sharp contrasts was the greatest problem facing the aerial photographer; yet, the recording on plate and film of enemy terrain with definition of detail, such as bushes, trees, shell holes, paths and creeks was vital for co-operation with the artillery and other land forces.

"It was to solve this problem that the research scientist speedily set his wits and technical knowledge, improving on older methods which barely scratched the surface of war needs. It is not generally known that it is blue light only which affects the sensitive coating of the ordinary kodak film or plate, but the Yankee air photographers learned that with increasing density of the blue earth haze the sensitiveness of the film of the mapping and other observation cameras caused only the blue mist to be photographed, and vital observation trips were without result.

"It was necessary to make films sensitive to colors other than blue and that color filters, appliable over the lens of the camera for the exclusion of blue and the admission of other hues, be developed.

"The difficulties of this problem were terrific when we entered the war, for the Germans had a strangle hold on our dye industry and we were running short of the chemicals purchased before the hostilities. American luck was with us, however, for the Rochester plant had in its possession a small quantity of the German dye used for the K filter, as it was called, and a big staff of analytical and synthetic chemists were put to work at the task of learning the secret formula of this precious fluid and the method of its manufacture.

"A new yellow filter was produced, from which a variety of other color filters were made which were indeed far superior to the German original. A gelatine film, dyed with the needed color of a definite density, cemented between two delicate slides of glass, constitutes the filter. The essentiality of filters for the photographing of land covered by mist and the gas and smoke of the battlefield, particularly in the variable weather of France and Flanders, can be understood readily by the fact that except only on the clearest, sharpest days filters were used of degrees varying with the hues and lights of the terrain and weather.

"Orthochromatic films and plates were then developed to complete this desired sharpness—these are sensitive to yellow and green as well as blue—while panchromatic films and plates—sensitive to all colors—were added to American achievement. Here, too, the Teuton death grip was removed from the chemical and dye manufacture necessary for the new processes, and we now use in the Army Air Service better panchromatic plates and films than were ever produced with the German materials.

"The American aviators and photographers, aided by the experts at home, advanced the use of these special films and filters so that sharp pictures were made repeatedly through haze and mist so thick that the ground was concealed from the naked eye and the Germans believed they were safe from observation. In view of the tremendous speed of the planes and the small time allowed for each exposure, because of the high altitudes and vibration of the airplanes, we in the service feel that we won a great victory.

"Our photographing of troops, by whom we could not be seen through the mist, enabled us to send back to the artillerists the movements and concentrations of enemy units, and within a few minutes after making our observations they would be surprised and annihilated by barrage and other combat methods."

OLD STOCKS OF MADRAS MOVE SLOWLY

In response to a demand for export to Japan and China the price of Madras indigo, which fell to a very low level in the later part of 1917 has been gradually rising since January, 1918, says Consul Lucien Memminger, writing from Madras. A Government crop report issued at the end of October, 1918, states that the area under indigo in the presidency is estimated at 114,650 acres as against 275,700 acres on the same date last year. The decrease is general, but is particularly heavy in the area where indigo is grown as a dry crop in the southwest monsoon season. In these districts the failure of the monsoon the past year has largely prevented sowings, except in Cuddapah, where the season was better. The general decrease in area is stated to be due to the dull state of the market throughout 1917 and the consequent difficulty of disposing of old stocks.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

M. W. D.—Question—Can you furnish us with a list of the indigo dyestuffs?

Answer—The indigo group of dyes is made up of the following: Indigo, Ciba violet, Thioindigo, Indi rubin. Thioindigo scarlet and Ciba scarlet.

E. M. S.—Question—Kindly inform us where we can obtain an orange and rose dye which will be fast to alkali, and will also leave silk white.

Answer—The Almarin Company are placing two colors on the market which will produce the results you desire; they are—"Chloramene Fast Orange" and "Chloramene Fast Rose."

J. H.—Question—What is the chemical known as "Chloramine T" and in what way may it be used?

Answer—Chloramine T is chemically, sodium para-toluene-sulpho-chloramine. ($CH^{3}.C^{6}H^{4}SO^{2}Na:NCL.$)

Besides being an intermediate for dyes, it is used in medicine as disinfectant sprays, powders, etc.

P. A. W.—Question—Can you enlighten us as to the general composition of the new type of coloring matters to be known as "Parazenes"?

Answer—"Parazenes are compounds in which two benzenoid nuclei are linked together with two nitrogen atoms through four para carbon atoms of the nuclei. Their method of preparation is too complicated for publication in this column.

C. A. S.—Question—We have a considerable amount of trinitrotoluene residue in the form of used nitration acids, and would like a method for recovering the same.

Answer—Dilute the acid with water so as to precipitate the bulk of the nitro compounds and then extract with toluene. The crude T.N.T. may be purified with alcohol.

When in Washington say:
"We Did Our Duty!"

A slogan worth while:
"We did Our Duty!"

NOTES OF THE TRADE

With a capital stock of $50,000, the Lorraine Hosiery Mills has been incorporated to manufacture hosiery, gloves and textiles. Headquarters will be in New York City.

Robert L. Wilson, formerly chief chemist of the Aetna plant, Aetna Explosives Company, has been made manager of the Northwestern Chemical Company.

C. A. Mace, who was for many years with the Badische Company, and more lately with the Marden, Orth & Hastings Corporation, has joined the sales force of Aniline Dyes & Chemicals, Inc.

The Erie Dyeing Company, Cleveland, Ohio, has been reorganized under the name of the Erie Dyeing and Processing Company, with a capital of $100,000. The officers of the new corporation consist of M. W. Haber, president; G. F. Landman, Philadelphia, vice-president, and Ben Haber, secretary-treasurer and manager. Plans are being completed for the erection of a larger plant, to be placed in operation in July or August, and the output will be doubled by the installation of additional equipment.

South America, according to reports among dye manufacturers, is said to be in the market for acid colors, principally greens, reds, yellows and browns for use in the textile industry. A number of orders for jet and blue-black nigrosines have also come from the leather manufacturers of the Latin-American countries.

John A. Phelan, a graduate of the chemistry and dyeing course, at the Bradford Durfee Textile School, Fall River, Mass., class of 1916, and who has been connected with E. I. du Pont de Nemours & Co., of Wilmington, Del., as color chemist, is doing some special chemistry work at the school before taking up a new position with the A. H. Metz Color Company of New York.

The annual meeting of the United Dyewood Corporation will be held May 1 at Wilmington, Del. Further plans have not as yet been announced.

To manufacture phosphates, oils, chemicals, etc., the Tennessee Agricultural Chemical Company has been incorporated under the laws of Tennessee with a capital of $2,000,000. Headquarters will be at Columbia, that State, and the incorporators are Theodore H. Durst, Richmond, Va.; H. S. Matthews, Dayton, Tenn., and H. A. Webster, Columbia.

The Marden, Orth & Hastings Corporation is about to move the offices of its dyestuff sales department from their New York building to the Calco Company's plant at Bound Brook, N. J. The Calco Company had erected large buildings at Bound Brook which were designed to accommodate Government contracts; these were cancelled after the signing of the armistice, and it is the company's intention to utilize these facilities, which are now serving no useful purpose.

It will sound well to say:
"We Did Our Duty!"

We are the Dye Industry—
"We Did Our Duty!"

AMERICAN
DYESTUFF REPORTER

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May 5, 1919

IN THIS ISSUE

So This Is Bolshevism!
Part I

Jokes About the Bolsheviki Are Passé; the Time Has Come for American Manufacturers to Understand Clearly What They Are and What They Do. We Have Endeavored to Give This Information Painlessly—and Quickly—in the Above and Its Succeeding Article.

The Indigoid Vat Colors

By G. A. Haley

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
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"Circulated Everywhere Dyestuffs are Used"

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SO THIS IS BOLSHEVISM!

The First of Two Articles Answering the Questions "What Is It?" and "What Does It Do?"

AGITATIONS or commotions of any sort always tend to disturb normal conditions in the areas surrounding the actual center of activities, and when there occurs an upheaval of the magnitude attained by the late war its effects are inevitably felt to the uttermost ends of the earth.

Some whose hobby is the study of psychology would have it that the extreme intensity of the emotional explosion — or whatever it was — which took place in Europe created waves of thought-vibrations which spread out in ever-widening concentric circles to unsettle the populace of other lands—very much as a large rock heaved squarely into the middle of a pond will eventually set up a gentle oscillation among leaves floating on the surface at its borders. Others of a more material turn of mind hold that the sight of thousands leaving their regular work and their homes—all that means the most to them in life—suddenly and radically alters the normal sense of values in those who remain behind, thus making for great instability among existing institutions.

The reader may take his choice of either or both. Both are wholly plausible, and doubtless it is the combination which brings about the result. It is certain that the result—the unrest—is present, and it is equally certain that this unrest renders American industrialism a fertile field for the cultivation of unsound doctrines planted there by the first scatter-brained malingerer who cares to come along and sow the seeds.

The time is ripe for the sowing, and the seeds which are daily being flung broadcast are the seeds of Bolshevism.

Before going any farther it is only fair to warn the reader that this article is going to deal wholly with the Bolsheviki, their origin, their beliefs and their practices, and that the word "dyestuffs" will be conspicuous by its absence. For this we do not feel constrained to offer any particular apology, since the legitimate function of any trade journal is the discussion of general industrial conditions which affect, or are at all likely to affect, the specific industry catered to. The Bolsheviki were once an inexhaustible well for the comic-supplement humorists; now they have become a menace, the harmful effects of which can be limited only by a widespread campaign of education in which the REPORTER feels it entirely consistent to take part. The relation of Bolshevik propaganda to the dye industry is considered on another page of this issue.

The average man to-day would be unable to give a clear definition of Bolshevism or to tell you very much about it save that it is now being tried out in Russia, where a rather disagreeable time is being had by all. This is scarcely enough information to warrant anyone's having definite opinions for or against it, or to permit of its activities being recognized. As a matter of fact, Bolshevism, once merely a bark, has now become a bark with a bite. Its tenets are among the very worst, being opposed to most of the age-old practices which go to make up common decency; it is gaining adherents, and misery and want invariably follow in its wake.

We shall endeavor to impart, as painlessly as possible, what it stands for. Charles E. Hughes, as president of the Union League Club of New York, recently appointed a committee headed by Archibald E. Stevenson to investigate the subject, which would take hours of reading to probe successfully, and it is to the two reports issued by this committee that we are largely indebted for the facts set forth.

ELEMENTS OF BOLSHEVISM

There are two well-recognized groups of periodical disturbers of the public peace. They are the Anarchists and the Socialists. There is a third, not so well known but fully as important, called the Syndicalists. This name is unfamiliar, but when it is stated that the I. W. W. is one of the leading exponents of Syndicalism its status at once takes definite shape.

The Anarchists, of whom Leon Czolgosz, slayer of President McKinley, was one, are stated by their principal leader in this country, Emma Goldman, to be working for the establishment of "a new social order based on liberty unrestricted by man-made laws; the theory that all forms of government rest on violence and are therefore wrong and harmful, as well as unnecessary." Through the Ferrer Association they have organized a school at Stelton, N. J., where criticism of the laws of the United States is part of the curriculum. In theory they refuse to participate in political activity because they believe all government is a bar to true progress. In practice they opposed the operation of the draft law and circulated propaganda of all descriptions against the participation of this country in the war. As a result of this many of them found themselves in jail, but the propaganda continued throughout the war. They believe in the abolition of capital and the State, and favor internationalism and the solidarity of the working people.

The Syndicalists, likewise, believe that all central authority must be abolished and that government must be carried on by agreements between various groups of workmen. In case difficult projects are undertaken, experts in finance, engineering and technology are to be hired by these groups. Their general principles are not unlike those of the Anarchists, except that where the Anarchists are individualists the Syndicalists are more clannish and would set up committees to determine policies and settle disputes. Hence, this form of government has been termed "Group Anarchism." The Industrial Workers of the World describe their aims thus in a pamphlet printed in the report referred to above: "As a revolutionary organization, the Industrial Workers of the World aims to use all tactics that will get the result sought with the least expenditure of time and energy. . . . The question of 'right' and 'wrong' does not concern us. No terms made with an employer are final. . . . Interference by the Government is resented by open violation of the Government's orders. . . . In short, the I. W. W. advocates the use of 'militant direct action' tactics to the full extent of our power to make good." The so-called Socialist Labor Party is actively identified with the Syndicalists. Like the Anarchists, the organizations classified under this heading believe in internationalism and the solidarity of the working people.

The third group referred to, the Socialists, are divided into two schools. The former—the Socialism of John Spargo and his associates—was comparatively harmless, as it advocated compromising with other governments. This was called Evolutionary Socialism. The extremists of the party, known as Revolutionary Socialists, however, took control at the beginning of the war and have been running things with a high hand ever since. One of the most pleasing of their beliefs is that national patriotism is a false doctrine. They also published pamphlets in which it was declared that the workers of this country had no quarrel with the workers of Germany. As in the case of the other two groups, they would have no France, no England, no United States, but "just one big family" of workers dwelling together in perfect accord, and consequently they, too, are committed to the idea of international working-class solidarity.

Because of their extreme views, all members of the three groups described above have, from time to time, been more or less loosely referred to as Radicals, and, since the red flag was often used as their symbol, they have likewise been termed the "Reds."

For the first time in their history the war united all three groups of Radicals. In Russia, their activities financed by German coin, they became so strong as to overthrow the government by which Kerensky was in vain trying to create order and a solid front against the Germans. Those in Russia who advocated the least amount of change of existing conditions consistent with better government came to be known as the Minimalists, or Mensheviki, while the adherents of the three radical groups, the "Reds," who advocated superlative measures, came to be called the Maximalists, or Bolsheviki.

Bolshevism, then, is a combination of the followers of Anarchism, Syndicalism and Revolutionary Socialism. They combined on the common plank in their respective platforms which advocates internationalism and the solidarity of the working people.

[The foregoing is the first of a series of two articles on Bolshevism and is intended to answer the question "What is it?" The second, which will be printed next week under the heading "Bolshevism: A Bark with a Bite," will endeavor to answer the question "What does it do?"—Ed.]

The Miller & Moran Chemical Works, 154 Nassau Street, New York, are considering plans for the reconstruction of their chemical works on Meadow Street, near the Lincoln Highway, Newark, N. J., destroyed by fire recently.

The Perth Amboy Chemical Works, Buckingham Street, Perth Amboy, N. J., have filed plans for the construction of a one-story addition to their works for increased capacity.

The Hendey Chemical Company of Manhattan has been incorporated with a capital of $10,000. The incorporators are A. E. and S. N. Hendey and C. W. Griffiths, 251 West Seventy-fifth Street.

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

THOSE AWFUL BOLSHEVIKI

The relation of Bolshevism—a brief exposition of which forms the leading article this week—to the American dye industry is an indirect and, in some respects, largely potential one. Nevertheless, there *is* a relation, and likely to be a more apparent one; hence the subject is spoken of at this time rather than later, when the chances for detecting its activities will be better but the chances for restraining those activities will be worse.

Thus far, according to some prominent dye manufacturers, no manifestations of Bolshevik interference with industry in the form of professional agitators have been observed in any of the plants. Present conditions render such interference unlikely just now, for the reason that stocks are being disposed of so slowly that the dye makers have been obliged to cut down their working forces and are not operating to capacity. This means that the malcontents, the malingerers and the inefficient, always the first to go, are not working in the dye plants, and, as it is among gentry of this stripe that the most active breeders of discontent are usually found, the industry is at present free from distracting influences, being made up of the saner and more steady elements of the business.

But the present inactivity is due to trouble in the textile mills, where labor difficulties and strikes have followed fast and frequently upon the heels of peace. Indeed, labor conditions in the textile industry are probably as bad as, if not worse than, any in the country. Dye makers sell more than 70 per cent of their output to the textile industry, and are consequently affected quickly by the numerous shutdowns and consequent losses of business which have occurred.

Just how much of the labor troubles in the textile mills have been directly due to Bolshevik agitators masked as Socialists, I. W. W.'s, or what not, would be difficult to say, for they employ extremely underhanded and furtive methods in spreading their poison. But certain it is that they have been responsible for a large share of the unrest, and should be most carefuly watched for. Some of them came from Europe by way of South America, working their passage as crews on coasting steamships. On obtaining shore leave at our ports they promptly disappeared, thereby entering the country without passing the scrutiny of the immigration officials. They are an unhealthy lot, coming forth at night to spread their insidious propaganda and false doctrines. They pose as the "friends of the working man"; but they are no true friends to anyone, least of all to prosperity.

To our way of thinking, it would be absurd to credit them with being a menace to the United States Government, much as they would like to be, but they *are* a menace to "good times" and the full dinner pail if ever there was one. It is this which should be impressed upon those in the mills who would listen to the obscene "personal liberty" which they advocate, and in this connection the campaign of education which seems likely to grow out of the recent investigations of the Union League Club of New York should be aided in every possible way by manufacturers and foremen. Once the American workman rightly understands what the Bolshevist stands for, he will have none of him;—"nature will do the rest!"

Once it was German propaganda; now it is Bolshevism which must be taken in hand. With the return of capacity operation of dye plants, that industry will again become a fertile field for the cultivation of unrest, and it is the new hands who must be watched.

A BARK WITH A BITE

(*Concluded from page 7.*)

so, however, there has been such a popular outcry against it that the practice has ceased in one or two localities.

According to Bolshevik ideals, there will no longer be money and we shall go back to primitive barter. Religion of any description, being a "bar to mental advancement," will be done away with.

Those who have begun to listen to Bolshevist arguments should be invited to apply all this to their own lives, and those of their sisters. Clear understanding of what Bolshevism brings about is the most effective argument against it. To the member of a labor union may be shown the following, taken from a recent pamphlet of "The Communist League of New Jersey":

"We must reverse the historic attitude of the Socialist Party towards the American Federation of Labor. Since its formation in 1898, the Socialist Party has pursued a policy of friendship and alliance with the A. F. of L. Our members have gone into the craft unions and have struggled to 'bore from within.' After twenty years we may read the result. Our efforts have collapsed in a heartbreaking failure.

"The A. F. of L. has ceased to be a labor union. It has allied itself with the master-class * * *. It has invoked the aid of the capitalist government to exterminate the revolutionary minorities within its unions."

It must be impressed upon all that the Bolsheviki would tear down our present Government—*but they do not offer a satisfactory substitute.* The exponents of Bolshevism are not in it for the good of their followers, but for the good of themselves. The Germans were quick to recognize what it would do to a people and encouraged it in Russia. The results are eloquent.

It must be impressed upon all that while our Government, like all human institutions, cannot be perfect, it is nevertheless the very best and fairest, bar none, which has been evolved thus far in history, while Bolshevism has not brought happiness to those who have tried it in Russia.

There is much more that could be said, but in brief it may be stated that the bark of Bolshevism is merely an empty bark so far as the continued solidity of the Government at Washington is concerned, but that it can cause endless trouble to both worker and employer wherever heard in industry, and therein lies its bite. General education will put an end to it, and this should be encouraged everywhere for the benefit of the American dye, textile and all other industries.

The Tennessee Agricultural Chemical Corporation, a $2,000,000 corporation with a Virginia charter, has bought the old Volunteer Phosphate Company property on Swan Creek, near Centerville, from the National Phosphate Fertilizer Company, and will erect a $135,000 plant with the new dry cleaning process that eliminates the necessity for washing the rock.

class they out-distance all competitors in their combined advantages of variety and beauty of shade, fastness properties, and ease and diversity of application.

THE THREE CLASSES

Chemically the vat colors fall into three well-defined classes. The first of these, the indigoid group, owe their name to their chemical relationship to indigo. The second group, the anthraquinone vat colors, are derived from anthraquinone, and in recent years vat colors of a third group have appeared, which are produced by methods resembling those used in the manufacture of sulphur dyes and are referred to as sulphurized vat dyestuffs. This last class is best known through its first member, Hydron Blue.

It is satisfactory to know that the production of vat colors is no longer a Continental monopoly. Members of all three groups are being manufactured and sold in this country under the following names:

Caledon colors, Anthraquinone class (Indanthrene type).
Chloranthrene colors, Anthraquinone class (Indanthrene type).
Duranthrene colors, Anthraquinone class (Indanthrene type).
Hydranthrene colors, Anthraquinone class (Indanthrene type).
Durindone colors, Indigoid class (Ciba, Helindone, Thioindigo type).
Carbindole Blue, Sulphurized class (Hydron Blue type).

Possessing in common the property already referred to of reducing to leuco compounds soluble in alkalies, the three groups of vat colors, as might be expected from their widely varying chemical constitution, display considerable difference in behavior towards various textile fibres. In practice each group has its own fairly well-defined sphere of usefulness, and it is the scope of this article to consider the indigoid series.

HISTORY

The history of the indigoid vat colors may be said to date from the year 1866, when Professor Baeyer commenced the celebrated researches which led to the analysis and eventually to the synthesis of indigo. Although indigo possesses a history and an individuality so marked that it has never become merged in the group of vat dyes to which it has given the generic name, it is not merely a member, but actually the parent, of the indigoid vat colors, and no reference to this family of colors would be complete without mention of their illustrious founder. Continuing the simile, it is also of interest to note that the father of the family as yet displays no symptoms of senile decay, but seems rather to have discovered the secret of perennial youth. Further, although some of his offspring have inherited all, or more than all, his good looks, none shows promise of equalling the old man in all-around efficiency, usefulness and popularity.

The theory and practice of indigo dyeing are so well known as to require no elaborate description, and reference to indigo application will be confined to comparatively recent developments.

Of these innovations one of the most important is that of the application of the solid hydrosulphites to the reduction of indigo and of other vat dyes. Sodium hydrosulphite made by reacting on sodium bisulphite with zinc, had been in limited use for indigo dyeing since the year 1871, but a great stimulus to the use of the hydrosulphite vat was given when sodium hydrosulphite in the form of a comparatively stable powder was placed on the market in the year 1904 or 1905. By the use of solid hydrosulphite the preparation of the indigo stock vat becomes a matter of extreme simplicity and reliability, and it moreover becomes possible to prepare an indigo vat free from sediment, the many advantages of which are obvious. The dyeing of indigo was further simplified by the introduction under the name of Indigo Solution or Indigo Vat of indigo in reduced and dissolved form. The use of such preparations in conjunction with hydrosulphite powder has made considerable headway prior to the war, and this method of dyeing undoubtedly represents the theoretically ideal method of applying indigo.

Wool Dyeing

In wool dyeing the introduction of prepared reduced indigos led to rapid adoption of the ammonia vat, and with the appearance on the market of Levinstein's Indigo LL Vat I 20 per cent, this method of dyeing is again being taken up. Indigo LL Vat I consists of a solution of reduced indigo containing no free caustic alkali, and with the aid of this preparation it is possible to dye wool under ideal conditions—viz., in a vat perfectly free from sediment as also from lime, caustic soda and other dangerous alkalies. Since indigo white is insoluble in ammonia there would appear to be a danger of precipitation of indigo white in the vat, but this difficulty was overcome by the observation that if glue is added to the vat any precipitated indigo white assumes a colloidal form which is quite suitable for dyeing. Although employed principally in the ammonia vat Indigo LL Vat I may also be used in the bisulphite vat, and on occasions is employed in replenishing wood vats.

The hydrosulphite vat for cotton is used to some extent in the continuous dyeing of pieces and warps, but particularly for cop dyeing in circulating machines where a dye liquor perfectly free from sediment is essential. The indigo may be reduced with hydrosulphite and caustic soda, but it is found more convenient to employ the reduced indigo solutions prepared by the synthetic indigo manufacturer. Indigo LL in reduced and dissolved form for cotton dyeing is now on the market under the name of Indigo LL Vat II 20 per cent.

For various reasons the hydrosulphite vat has found little application in the dyeing of indigo on cotton yarns. This material is almost invariably dyed by dipping single hanks in a succession of vats and wringing out by hand between each dip. It has been found, however, that by attaching to the dye-beck a pair of squeezing rollers through which the yarn may be passed immediately on removing from the vat, cotton yarn can be dyed in lots of 50 to 60 pounds instead of in 2-pound hanks. Moreover, by reducing the amount of caustic alkali and adding Glauber's salt to the vat, considerably deeper shades are obtained in one dip that was hitherto possible. This method of dyeing not only effects an economy in labor, but gives shades of maximum fastness to rubbing and washing.

It may be mentioned here that in addition to the reduced indigo preparations already referred to, which are solutions of the sodium salt of indigo white, the makers of synthetic indigo have also placed on the market brands in paste and dry form consisting of free undissolved indigo white. These possess the advantage of keeping almost indefinitely, due to the fact that free indigo white is only very slowly oxidized by the air, and they are readily soluble in lime-water, caustic soda, or even in the vat liquors. They have proved particularly suitable for export to tropical countries, but are of little or no importance to the home consumer.

Hydrosulphite Discharges

Another modern innovation in connection with indigo is that of the application of hydrosulphite to discharge printing. The older method of discharging with oxidizing agents, such as bichrome or chlorates, was accompanied by serious danger of tendering the fibre, and it was evident that discharging with reducing agents, if practicable, would be very advantageous. Hydrosulphite itself is too unstable a body to allow of its use for this purpose, but the problem was at once simplified by the discovery, at a print-works in Moscow, of the stabilizing action of formaldehyde on hydrosulphites. The reaction of these two substances gives a product known chemically as formaldehyde sodium sulphoxylate, introduced into commerce originally as Rongalite C, and now manufactured in England as Formosul. This body, which only decomposes and exercises its reducing action at high temperatures, seemed ideally suited for discharging indigo. It was thought that by printing with Rongalite solutions and steaming the indigo would be reduced and the leuco indigo could be removed from the fibre by passing through alkalies. The results obtained were, however, disappointing, as it was found in practice that poor whites were obtained owing to re-oxidation of the leuco indigo before stripping could be effected. This difficulty was eventually overcome and the process rendered technically possible by the interesting discovery of the Leucotropes. It was found that certain complicated ammonium bases, in which a benzyl group was present, combined with indigo white giving yellow benzyl compounds which were not oxidized on exposure to air. If, therefore, indigo-dyed material was printed with a mixture of Rongalite and one of these bodies and steamed, the indigo white which was formed was converted into the stable yellow benzyl compound.

This benzyl compound was not, however, soluble in alkalies, and could only be used for yellow discharge effects. It was later found that a sulphonic acid of the original Leucotrope gave with reduced indigo a yellow benzyl compound of leuco indigo which, whilst equally resistent to oxidation, could be removed from the fibre by alkalies, and the problem of discharging indigo with reducing agents was solved. In practice it has been found necessary to add zinc oxide to the discharge paste, the zinc entering into the chemical reaction which occurs.

A mixture of Leucotrope, Rongalite and zinc oxide has been sold in large quantities under the name of Rongalite CL, and the process has been extensively applied to the discharge printing, not only of indigo, but also of other colors of the indigoid class.

So well has the field of indigo application been ploughed in the last twenty-five years that we seem almost to have reached finality in its development and improvement, and even the most ardent opponent of synthetic indigo will admit that the conversion of indigo to the ranks of coal-tar colors has resulted in a great expansion of our knowledge of the application of this important coloring matter.

METHOD OF MANUFACTURE

The evolution of the indigoid vat colors from the parent substance may now be very briefly described. It had long been known that by introducing certain chemical radicles into the indigo molecule new products could be obtained which, whilst resembling indigo in general features, differed from it to a greater or less extent in shade or fastness properties. For example, the introduction of two methyl groups gives a blue of greener shade and increased fastness to chlorine, and this dyestuff was on the market under the names of Indigo T and Indigo G. The effect of introducing a naphtyl group into the indigo structure is to produce a green coloring matter, and this has also appeared in commerce. Dyestuffs of greater commercial importance resulted by acting on indigo with bromine. Depending on the conditions of bromination varying dyestuffs containing different amounts of bromine can be obtained, and several of these brom-indigos have been introduced under such names as Indigo R, 2R, 4B, 5B, and 6B, Ciba Blue and Durindone Blues. Dyestuffs similar to the brom-indigos are obtained by the use of chlorine, either alone or together with bromine, and such were put on the market under the name of Brilliant Indigos. The chlor- and brom-indigos are brighter in shade than indigo itself, and beyond a certain point an increase in the number of bromine atoms produces greener shades. At the same time the dyestuffs become weaker, and their leuco compounds less readily soluble. The new dyestuffs are also found to be somewhat faster to light, washing and chlorine than indigo, and in some cases to have acquired so increased an affinity for the cotton fibre that they dye and exhaust well from a hot dye-bath. Such, for example, is the case with the Durindone Blues.

Indigo on oxidation gives a substance called isatin, from which several indigoid colors—*e. g.*, Alizarine Indigos and certain Helindone Blues, are obtained. If isatin, an oxidation product of indigo, is combined with indoxyl, one of the reduction products of indigo, a substance named indirubine is obtained, the same indirubine or red impurity which is found to a greater or less extent in all natural indigos. Now indirubine as a dyestuff is worthless, but like indigo it can be brominated, giving rise to useful violet vat colors. The effect of bromine in converting otherwise worthless products into useful dyestuffs is an interesting feature of this group of colors.—*Dyer and Calico Printer.*

(PART II WILL FOLLOW)

NOTES OF THE TRADE

The Fabric Cleaning & Dyeing Company has been incorporated, under the laws of New York, at Queens, L. I., with a capital of $1,000,000. The incorporators consist of C. S. Julien, E. J. A. Williams and C. S. Woodman, 20 Nassau Street, New York City.

Aniline Dyes & Chemicals, Inc., announce that, in order to better serve their customers in the West, they have opened an office and warehouse at 227-233 West Huron Street, Chicago, Ill.

Stocks of dyestuffs and chemicals for the textile, paint, paper and tanning industries will be warehoused there. Fully equipped laboratories in charge of a competent chemist will be maintained for the convenience of their customers, and J. B. Jones, formerly manager of the Chicago branch of the United Indigo & Chemical Company, will be in charge.

With a capital of $250,000, the Winthrop Chemical Company has been incorporated, under the laws of New York, by C. B. Fernald, H. H. Ramsay and E. R. Early. Headquarters will be at 120 Broadway, New York City.

The Reflex Manufacturing Company has been incorporated at Parry Sound, Ont., Canada, to manufacture polishes, paints and varnishes. The capital is $40,000 and the provisional directors are David J. Fleming, Samuel A. Rankin and William D. Fleming.

The Lanfield Aniline Color Company, Chicago, Ill., has been dissolved. No plans for reorganization have as yet been announced.

The first cotton-ginning plant in Zululand, writes Vice-Consul Charles J. Pisar from Cape Town, recently commenced operations at Amatikulu, after almost a year's preparatory work. The capacity of the American gin installed is between 1,500 and 1,600 pounds of lint for an eight-hour day, which represents 2½ tons of seed cotton. The installation of this ginning plant is looked upon as one of far-reaching importance for the cotton growers in Zululand, and it is believed that cotton growing there, which has been receiving special attention from Government experts, will undergo a very rapid development in the near future.

SOUTHERN TEXTILE CONVENTION

The annual convention of the Southern Textile Association will be held at Greenville, S. C., on May 8 and 9, in connection with the third biennial textile exposition, which will open in that city May 5 and extend through the week.

The mayor of Greenville will give an address of welcome when the convention convenes at 11 a. m. on May 8. The president of the association, A. M. Dixon, will deliver his annual address and there will be appointed committees on the preparation of technical papers. On Friday morning, May 9 there will be a talk by Prof. Doggett, of Clemson College, the reading of two technical papers and the election of officers.

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An Editorial

The Indigoid Vat Colors

By G. A. Haley

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A BARK WITH A BITE

Part II of "So This Is Bolshevism!"

WE have already seen that certain elements of the Revolutionary Socialists, the Syndicalists and the Anarchists united at the beginning of the war under the red flag of Bolshevism, being enabled to "get together" peaceably, in a manner of speaking, through the common plank in their three platforms which championed the idea of international dictatorship by the working people. Naturally, there were three forms of government from which the united radicals could choose, and they wound up by selecting the Syndicalist form.

This, it will be remembered, has been termed "Group Anarchism," by reason of the fact that it resembles the ideals sought by the Anarchists save that it calls for government by committees of working people instead of each individual becoming a law unto himself. The authority of such committees, in theory at least, is made to apply principally to working hours and less to leisure time. It is the practice for the workers in each shop to vote for one of their number to represent them on the local committee in charge of their district. These committees, in Russia, are termed "Soviets"—hence the modified Syndicalist regime under which the Bolsheviki in that unhappy country are trying to live is called the Russian Soviet Republic—a republic governed by Soviets.

The Soviets meet periodically and arbitrate the various questions, disputes, etc., which may arise. If this is one of their functions, they may safely be pictured as working three shifts a day with the reserves out on Sundays, for wrangles have not been unknown in the "Utopia" which they have created! However, we have no authority for this idea. At all events, their decisions are quite as arbitrary as those of the former rulers. Any member of a Soviet is subject to instant recall by those who elected him, or her—for the right to vote and to be elected to a Soviet is enjoyed by the following citizens of both sexes who have attained their eighteenth year on the day of the election:

"All who have acquired the means

of living through labor that is productive and useful to society, and are members of the trades associations, namely:

a—Laborers and employees of classes who are employed in industry, trade and agriculture.

b—Peasants and Cossack agricultural laborers who hire no labor.

c—Employees and laborers in the offices of the Soviet Government.

d—Soldiers of the army and navy of the Soviets.

e—Citizens of the two previous categories who have to any degree lost their capacity to work."

All others are excluded from the franchise. It is pointed out that although this does not create an ideal socialistic state, soon universal suffrage will establish itself because soon every person in Russia will have to work for a living.

Instead of electing representatives of the people at the polls, they are chosen in the shop and union meetings. The delegates to the Soviets take their instructions from their constituents, and each local Soviet elects a delegate to the All-Russian Assembly, which is scheduled to meet every three months, and by which every public question is decided. When it adjourns, the functions of governing devolve upon an Executive Committee which passes laws and appoints the Council of People's Commissaries, which fulfills the duties of a cabinet.

Although the Russian Socialist Soviet Republic is a comparatively new thing, it must not be supposed that " Bolshevism," as a term for a group or political party, is new. The expression came into being years ago, and attracted the attention of the outside world in 1903, when Lenine, despairing of making any further progress in Russia, started his "Bolshevik" party in Sweden. In 1905 the great labor difficulties which terminated in the Russian revolution of that year gave him another opportunity to try his hand, with the result that the Bolsheviki at length attained the dignity of recognition as a political party.

Roughly speaking, three types of people may be recognized among the followers and advocates of Bolshevism.

First we have a not too plentiful variety in the impractical, visionary and highly idealistic dreamer whose plastic mentality has been seized upon by stronger ones and who honestly believes that the Bolsheviki can bring to pass all that they claim, if once given a fair trial. They fail utterly to grasp the fundamental characteristics of human nature and consequently to see what certain chaos the actual practice of their theories would bring about. Being much in earnest, they are able to influence others, and are used as catspaws by the shrewd agitators—of whom we shall speak later.

Then we have a large mass of uneducated (in many cases illiterate) workers whose lives, goodness knows, *have* been filled with little pleasure, and whose struggle for existence has been of the very harshest kind—often in the face of a despotic government which accorded them no rights except the right to slave for some one else. Even in this country there is still much which could be done to improve their lot—none will gainsay that; nevertheless, their condition will continue to improve as time goes on and they learn more about the principles of democracy. But this they do not always realize, nor do they realize that under the United States Government they have a chance for self-improvement which they never had across the water. They only know that they want a change of some sort—quick! Bolshevism offers them a change; the war has made them restless, and they are not disposed to inquire too closely into what kind of a change they get, just so long as they can get it. The Bolshevik agitators promise them all manner of improvements to their lot in life and they hurrah for them and go home to tell their friends all about it. All men are equal in this country before the law and the United States Government; the Bolsheviki tell them that they shall no longer be merely equal to other groups, but the superiors of all groups. No wonder they are attracted!

Lastly, there are the professional agitators, and these are the real root of all the trouble. They are advocates of Bolshevism for what they can get out of it, and for no other reason. They can make a better living from contributions received for "the cause" than they can by working at a trade. They are, many of them, lawless individuals who realize that under Bolshevistic rule they can obtain offices and power which they could never hope to gain under our republican form of government. They likewise hope to secure full sway for their passions and propensities toward excesses under the "freedom" which they preach.

For the Bolsheviki are first, last and all the time great exponents of freedom. They are nothing if not freethinkers; we'll grant them that! They *must* be free—free to be ruled by the agitators who promise them freedom. Get this:

"It would be the greatest stupidity and the most absurd opportunism to suppose that the transition from capitalism to socialism is possible without compulsion and dictatorship."

"We are now in the third stage (of the Russian Revolution.) Our gains, our decrees, our laws, our plans must be secured by the solid forms of *everyday labor discipline*. This is the most difficult, but also the most promising problem, for only its solution will give us Socialism. We must learn to combine the stormy, energetic breaking of all restraint on the part of the toiling masses, with *iron discipline during work*, with *absolute submission* to the will of one person, the Soviet director, *during work*."

The foregoing are two paragraphs from Lenine's recent pamphlet "Soviets at Work," and show strikingly the "freedom" to which the Bolsheviki aspire.

This, of course, is during working hours only. Very well; after a man goes home he will be free. Surely he will. He is free to do anything that he is free to do now, and several things besides. Let us suppose he wants a "wife." He goes to his local Soviet, scans the list of eligible unmated women (we do not say unmarried; *all* women will be unmarried under Bolshevism), enters the room where such are required to submit themselves to his inspection, and selects the lady of his choice. She is forthwith compelled to live with him, without the trifling formality, however, of a church or civil ceremony. This is called the "nationalization" of women, and is in practice in Russia under Bolshevik rule. Even

(*Concluded on page* 12.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

PUT IT OVER

One week from to-day, Monday, May 19, the Sixty-sixth Congress of the United States will meet to set the legislative mill a-grinding once more. For the first time in the history of the country, the members of Congress will hold their opening meeting without having the President on hand in person to read his message. But the message will be cabled, the Speaker will function, and things will go much as usual, no doubt. Only, to the American dye industry, the coming session will be fraught with peculiar interest and things may come of it which will spell continued development or ignominious abandonment of some cherished ideals.

Congress happens to be meeting earlier than was expected, and the time for deciding on what laws are most needed to protect the industry draws rapidly to an end. Three weeks ago the REPORTER took occasion to point out that unless someone with a better scheme came along meanwhile, the best request to lay before our Solons was for the forty-five amendments to the Tariff Act of September 8, 1916, plus a licensing commission to keep an eye on imports. England has one, France has one, Japan exercises a similar supervision over dye imports, Italy does the same—and so on through the list. The United States will be the only country without a provision of this kind unless definite action is taken, and taken soon.

This is no time for apathy. The Tariff Commission will take care of the proposed amendments and very likely get them passed without anyone worrying too much about it. Our new Alien Property Custodian, Francis P. Garvan, told students at Yale University last week that it was the intention of the Chemical Foundation to ask for a licensing commission. The Chemical Foundation is a powerful organization, powerful in numbers and powerful in influence, and altogether this is the most encouraging piece of news the REPORTER has heard yet. Even so, this organization will need backing and plenty of it.

The issue ought to be clear enough by this time. Everyone admits that a licensing commission is the proper caper if we would keep our new-won dye manufacturing laurels. But the step is a somewhat radical one, and Congress will not be so easy to influence. And in cases like that, an unvaried, strongly united front is often half the battle. The decision for a licensing commission has been taken by an overwhelming majority of the industry, and this being the case, it looks like a choice between that and nothing, for Congress will not be disposed to favor a measure about which there seems to be a difference of opinion on the part of those seeking it.

Let's get together and put it over!

THE U. S. AS A DYESTUFF EXPORTING NATION

During recent weeks the publisher of the REPORTER has been giving thought to the feasibility of establishing a monthly export edition of the AMERICAN DYESTUFF REPORTER. The question which first presented itself in this connection was whether or not the United States might reasonably expect to secure and retain a fair share of the world's business in dyestuffs.

In seeking an answer to this question we have visited a large number of people whose opinion in this connection would appear to be of value and we have received nearly as many widely differing answers as we have interviewed people. A few of those interviewed expressed the conviction that we, as a nation, could not possibly hope to compete in foreign markets with the manufacturers of other countries. A great majority expressed doubts of various kinds but seemed to feel on the whole, that we could be expected to retain a certain amount of the export business we have enjoyed during the last year or so. A few others—and it is noteworthy that among these were the people whom we regard as probably the best informed on dyestuff questions—expressed the belief that America had arrived at a point where she was about to become one of the great exporting nations of the world and that in dyestuffs, as in many other commodities not previously exported, we would unquestionably secure and retain our fair share of the world's dyestuff business.

And our personal opinion coincides emphatically with this latter class. We believe that American technical and business ability will ultimately solve any problem with which they are confronted. It has been the history of all our industries that when the problems involved were seriously attacked they were, in due course, satisfactorily solved.

In other words, we have such faith in the business acumen of those who are the chief factors in the American dyestuff industry to-day that we believe their efforts to conquer the world's market cannot fail. We are aware, of course, that tremendous difficulties will be encountered and we do not, for a moment, imagine that they can be overcome in a short space of time. But we are nevertheless firmly convinced that they be overcome and that ten or fifteen years hence America will be as firmly established in the dyestuff markets of the world as she is to-day in machinery, shoes, steel products, etc.

The two chief difficulties which will have to be overcome are, of course, those of quality and price. It is generally recognized that American dyestuffs, as a whole, are not as yet the equals, at least as far as uniformity goes, of similar dyes of German and Swiss manufacture. But it is nevertheless true that progress in the way of variety and quality of colors has been extremely rapid and that a comparatively short time should serve to see us competing on an even basis, so far as quality is concerned. It is unreasonable to expect an industry only two or three years old to measure up in every way with one that dates back several decades.

As to price, the chief item will be one of labor. In this connection we believe that the ingenuity of American chemical engineers will devise ways of supplanting, by mechanical means, the employment of a large percentage of the labor which is now involved in dyestuff manufacture. In other words, we feel confident that our American chemists and chemical engineers will be able to develop processes of manufacture which will make it possible for us to compete on a price basis with the manufacturers of other nations. All of this will, of course, take time, but to one who is convinced of the fundamental superiority of American industrial ability there can be but one answer.

It should prove interesting, thinks a writer in the *Journal of the Society of Dyers and Colourists,* to those who believe Germany has been accumulating stocks of chemicals with which to flood the markets of the world after peace is concluded, to learn that a recent issue of the *Farber-Zeitung* contained the advertisement of a man who wished to purchase alphanaphthylamine. "It is surprising and rather illuminating," the writer declares, "to note that it should have been necessary in Germany, of all countries, to advertise in a technical paper in order to obtain alphanaphthylamine."

A BARK WITH A BITE

(Concluded from page 7.)

so, however, there has been such a popular outcry against it that the practice has ceased in one or two localities.

According to Bolshevik ideals, there will no longer be money and we shall go back to primitive barter. Religion of any description, being a "bar to mental advancement," will be done away with.

Those who have begun to listen to Bolshevist arguments should be invited to apply all this to their own lives, and those of their sisters. Clear understanding of what Bolshevism brings about is the most effective argument against it. To the member of a labor union may be shown the following, taken from a recent pamphlet of "The Communist League of New Jersey":

"We must reverse the historic attitude of the Socialist Party towards the American Federation of Labor. Since its formation in 1898, the Socialist Party has pursued a policy of friendship and alliance with the A. F. of L. Our members have gone into the craft unions and have struggled to 'bore from within.' After twenty years we may read the result. Our efforts have collapsed in a heartbreaking failure.

"The A. F. of L. has ceased to be a labor union. It has allied itself with the master-class * * *. It has invoked the aid of the capitalist government to exterminate the revolutionary minorities within its unions."

It must be impressed upon all that the Bolsheviki would tear down our present Government—*but they do not offer a satisfactory substitute.* The exponents of Bolshevism are not in it for the good of their followers, but for the good of themselves. The Germans were quick to recognize what it would do to a people and encouraged it in Russia. The results are eloquent.

It must be impressed upon all that while our Government, like all human institutions, cannot be perfect, it is nevertheless the very best and fairest, bar none, which has been evolved thus far in history, while Bolshevism has not brought happiness to those who have tried it in Russia.

There is much more that could be said, but in brief it may be stated that the bark of Bolshevism is merely an empty bark so far as the continued solidity of the Government at Washington is concerned, but that it can cause endless trouble to both worker and employer wherever heard in industry, and therein lies its bite. General education will put an end to it, and this should be encouraged everywhere for the benefit of the American dye, textile and all other industries.

The Tennessee Agricultural Chemical Corporation, a $2,000,000 corporation with a Virginia charter, has bought the old Volunteer Phosphate Company property on Swan Creek, near Centerville, from the National Phosphate Fertilizer Company, and will erect a $135,000 plant with the new dry cleaning process that eliminates the necessity for washing the rock.

THE INDIGOID VAT COLORS

By G. A. Haley

(Continued from last week.)

Great interest was aroused in the dyeing and color-chemical world by the discovery in the year 1905 by Professor Friedlander of Thioindigo Red, now manufactured and sold in this country as Durindone Red B, a product which we may regard as being derived from indigo by replacing imido groups with sulphur. Although it has not altogether fulfilled the somewhat extravagant expectations that were placed upon it at the time of its discovery, this useful dyestuff has, in a similar manner to indigo, proved to be the parent substance of a large number of other vat colors. The introduction of chlorine, bromine, methyl, amino and other chemical radicles into the molecule, which had already been accomplished in the case of indigo, was found equally effective with thioindigo, and gave rise to a series of orange, scarlet, red, pink, violet and gray dyestuffs.

Just as indigo on reduction yields indoxyl, so thioindigo gives rise to thioindoxyl, and this again yields new vat colors of the Ciba Red G, Durindone Red Y and Helindone Brown types.

Bearing in mind the fact that some thirty or forty indigoid vat colors known to-day could scarcely have been discovered without an accurate knowledge of the chemistry of indigo, these products form an almost perfect example of the practical value of purely scientific work in connection with color chemistry, and illustrate in an interesting manner the way in which a group of dyestuffs is evolved.

The known indigoid vat colors include almost all conceivable shades, ranging from greenish-yellow through orange, scarlet, red, claret, violet, blue, green and brown to gray. The manufacture of these colors was first taken up in this country about eighteen months ago by Levinstein Ltd., who have placed six members of the series, three blues, two reds, and a scarlet, on the market under the name of Durindone colors.

The indigoid vat colors differ broadly from those of the anthraquinone type in giving leuco compounds soluble in comparatively dilute alkalies. On this account they are applicable to animal as well as vegetable fibres, whereas the anthraquinone series cannot as a rule be dyed on wool.

In dyeing the colors it is customary to dissolve the dyestuff in the form of a stock vat with hydrosulphite and caustic soda, in much the same way as for indigo, the reduction proceeding generally more slowly than is the case with indigo. With certain colors whose leuco compounds are not very readily soluble the addition of Turkey Red oil, or a similar preparation, to the stock vat is necessary. The temperature of the stock vat should be carefully regulated as certain colors are adversely affected by dissolving at too high or too low a temperature. The stock vats can generally be kept for a considerable time without deteriorating, an advantage which is not shared by most of the members of the anthraquinone series.

It will be advisable first to consider the application of the indigoid colors to vegetable fibers. The indigoid vat colors differ amongst themselves considerably in affinity for the cotton fibre. Whereas certain members, *e. g.*, the mono- and dibrom-indigos and Durindone Red B, exhaust almost as incompletely as indigo and are best dyed cold, others, such as the Durindone Blue, possess very good affinity, exhaust almost completely in light and medium shades, and are dyed from a hot bath. Under these circumstances it is evident that the colors cannot be combined indiscriminately, but that for the dyeing of compound shades colors of similar affinity should be selected.

The production of satisfactory results with vat colors is dependent, in the first place, on the color in the dyebath being in a fully reduced and dissolved condition, and, providing that excess of hydrosulphite and caustic soda has been avoided, the appearance of the stock solutions, and subsequently of the dye liquors, is a sufficiently good guide as to their condition. The normal appearance of stock vat and dye liquor in the case of the Durindone Colors is shown in the table below:

	Stock Vat	*Dye Vat*
Durindone Blue 4B	Yellow	Yellow and clear
Durindone Blue 5B	Yellow	Yellow and clear
Durindone Blue 6B	Yellow and cloudy	Yellow and clear
Durindone Red Y	Yellow	Pale yellow and clear
Durindone Red B	Yellow	Yellow and clear
Durindone Scarlet	Yellow	Pale yellow and clear

THE STOCK VAT

The condition of the stock vat is conveniently judged by viewing a sample in a dish or beaker, the film of reoxidized color which rapidly forms on the surface being disregarded. The dye liquir is best examined in a test tube or pipette by transmitted light. A shortage of hydrosulphite in stock vat or dye liquor is indicated by a color intermediate between the unreduced and the fully reduced dyestuff; for example, Durindone Blue liquors containing too little hydrosulphite are green instead of yellow. Where sufficient hydrosulphite but too little caustic soda has been employed the stock vats or dye vats will show the color of the leuco compound of the dyestuff, but will be cloudy instead of clear.

Loose cotton is dyed in open tubs or

circulating machines, yarn on straight sticks, and piece-goods on the jig, in padding machines, or in continuous machines, the dyeing process lasting usually half to three-quarters of an hour.

Just as the colors reduce less readily than indigo, so the leuco compounds reoxidize more slowly than does indigo white. After removing from the dyebath it is necessary to allow the leuco compound to oxidize before washing off. Neglect of this precaution may give rise to unevenness due to local stripping of the color. The oxidation may advantageously be accelerated by a mild treatment with acids or with oxidizing agents such as chloride of lime or sodium perborate. Although at this stage the oxidation and fixation of the color would appear to be complete, such is actually not the case, and to obtain the maximum fastness to light and washing it is necessary in most cases to submit the dyeing either to a hot bichrome treatment, or preferably to boiling in soap solution.

SPECIAL USES

The technical considerations which determine the purpose for which any group of color matters is adopted are those of dyeing properties and fastness properties in comparison with other available products. No group of dyestuffs is without its limitations, and every group possesses qualities recommending its members for particular classes of work. As a result of their properties the indigoid vat colors have become firmly introduced for the dyeing of cops, warps and yarns where good fastness, without the very highest fastness, is required. The question often arises as to whether the indigoid vat colors are absolutely fast. They are not; no dyestuff possesses absolute fastness. Nor are the indigoid colors as a class as near absolutely fast as the statements of certain color makers would lead one to believe. But they are of good all-round fastness, and they rank second only to the vat colors of the anthraquinone series. Generally speaking, they are fast to milling, cross-dyeing, and all ordinary washing, although the fastness to washing of isolated members of the series, *e. g.*, Durindone Scarlet R, is much inferior to the average. Many are of excellent fastness to hypochlorites, and a few are fast enough to withstand open-kier boiling followed by checkmiking as practised in the bleaching of goods containing colored stripes, but for this purpose the anthraquinone vat colors have been more widely used and are generally more satisfactory. In fastness to light on cotton the indigoid vat colors vary amongst themselves considerably. Some show about the same fastness as indigo and others are appreciably faster, but none is equal to the best members of the anthraquinone group. In spite of assertions to the contrary which have been made by interested parties it should be realized that where the highest attainable fastness to light is desired, *e. g.*, for the "guaranteed casement cloth" trade, the indigoid vat colors are scarcely fast enough and the anthraquinones are preferable.

In calico printing, owing to the better solubility and stability of their leuco compounds, the indigoid vat colors are more easily applied than the anthraquinones, and they are extensively employed in this branch of coloring for direct, resist and discharge printing in combination with each other and in conjunction with indigo and other classes of dyestuffs. For printing purposes either glucose and caustic soda or Formosul may be used as reducing agents. At the present stage of the development of indigoid color application, calico printing is probably their most important sphere.

In considering the application of indigoid vat colors to animal fibers we step at once on to less familiar ground, since this branch of dyeing is still practically in its infancy. Generally speaking, the colors resemble indigo in being faster to light and washing on animal fibers than on vegetable, and by reason of the beauty of their shades and their fastness to water, washing and light, they undoubtedly have a future for the dyeing of fast colors on silk.—*Dyer and Calico Printer.*

(To be concluded next week.)

BLEACHING AND BLACK DYEING TUSSAH

The raw material of a brown or grayish-brown color is well known to be difficult to bleach, but the following procedure will be found to give a good result: First comes the degumming, which is done in a soap bath made up of 10 lbs. of benzine soap dissolved in 100 gallons of soft water at a temperature of from 100 to 120 deg. Fahr. When the soap is thoroughly dissolved, an addition is made of 2 lbs. to 5 lbs. perborate of soda, which has previously been dissolved in a little cold water to prevent the emission and loss of oxygen. The goods, either flanks or pieces, are then entered and kept gently working, while the liquor is heated up slowly, a permanent froth making its appearance on the surface of the liquor after a little time, in which part most of the ungumming takes place. Provision should be made in the vessel for as much of this lather forming as possible, without its boiling over the top, as the great advantage the lather gives is to de-gum the silk without felting it together as ordinary soap liquor does. The process takes from three to four hours, with a liquid temperature, of from 140 to 160 deg. Fahr., and the vessels used are either open or closed. When pieces are treated the de-gumming takes a longer time for the hanks, five or six hours being often necessary, while circulation of the soap is kept up by a pump which sprinkles the liquor over the goods, taking it from that which has run through them. Following de-gumming, the goods are drained and passed into the bleaching liquor, while the soap used can be re-worked again.

BLACK DYEING

Owing to the close twist of tussah which causes it to curl up very readily and so hinders penetration of the dye, the old style of dyeing it a black by means of cutch and logwood, alternated with the usual iron mordants, does not always answer. If, however, a heavy weighting is not present, the silk can be easily dyed a good black in much less time than the old system, by working on the following lines: 4½ lbs. of soda crystals are dissolved in 100 gallons of water in a wooden or copper vessel, in which the silk is entered and washed for half an hour at the boil. The silk is now lifted, and the liquor run off, replacing it with another 100 gallons of water which is raised to the boil and sufficient soap solution added to bring about a good lather. In this liquor the silk is worked for half an hour, and is then lifted, drained and centrifuged.

To the old soap bath there is now added 2 lbs. to 5 oz. Brilliant Green and 3 lbs. Fast Red. These should be dissolved separately, and added to the soap bath through a hair sieve. A good boiling up of the ingredients should now be given, after which the goods are worked in it for twenty minutes, and then lifted while the bath is freshly boiled up again. The goods are now re-entered and worked for twenty minutes while the bath is cooling, when rinsing and brightening with a weak sour bath of sulphuric acid is given, and the material is rinsed, dried and steamed on a stretcher frame to luster it. When the above proportions of dye are given, the result will be a blue-black, and for a deep jet shade the respective quantities must be increased. For example—3½ lbs. of Brilliant Green and 3 lbs. 5 oz. of Fast Red will be required, together with 12 ozs. of Azo Yellow to sadden the shade.—*Canadian Textile Journal.*

According to recent press reports, the production of a tanning extract known as "gametto" and having as its base the liquid found in palmetto roots will be undertaken at Miama, Florida, by Walter J. Lloyd, who has organized the Paltanic Tanning Extract Company and expects to begin shortly the manufacture of the extract on a large scale. This will be a substitute for Indian gambier. It is believed that the restrictions placed by the British Government on shipments of gambier to this country will greatly help the efforts of the manufacturer to create a market for "gametto" in the United States.

REVOCATION OF BRITISH GENERAL LICENSE FOR DYESTUFFS

The trade and licensing committee appointed to administer the prohibition against the importation of dyestuffs has given notice, writes Consul General Robert P. Skinner from London to the U. S. Department of Commerce, that from April 14 the general license which was granted on February 27 to permit the importation of products of bona fide American, French or Swiss origin will be revoked. All consignments en route from place of origin to the United Kingdom on a through bill of lading on April 9 will be admitted without special license, but in all other cases a special permit from the trade and licensing sub-committee will be required prior to the purchase abroad of dyestuffs or other products covered by the proclamation. Applications for licenses should be addressed to the Trade and Licensing Subcommittee, Danlee Buildings, Spring Gardens, Manchester.

NOTES OF THE TRADE

Dr. A. D. Chambers, manager of the Dyestuffs Division of E. I. du Pont de Nemours & Co., who has been ill for some weeks, has returned to his duties.

With a capital of $175,000, Salembier, Levin & Company, Inc., has been incorporated under the laws of New York to deal in textiles. Headquarters will be in New York City, and the incorporators are A. E. Manne, C. H. Meyer and H. Seltzer.

After two years' interval, owing to war conditions, the British Association for the Advancement of Science will resume its series of annual meetings this year at Bournemouth, from September 9 to 13, under the presidency of the Hon. Sir Charles Parsons.

Thomas F. O'Keeffe, for the past year a member of the sales department of Frank Hemingway, Inc., New York office, has severed his connection with that firm and is now in business for himself as head of the Columbia Dyestuff Company, dealers in dyes and intermediates, at 150 Nassau Street, New York City.

Bids on the United States Government picric acid plant at Brunswick, Ga., will be opened on May 20. The plant consists of a 2,000-acre tract, on which are located all the necessary buildings for its operation, including a power plant and dwellings for officers and workmen, some partly completed. The bids will be opened at the office of the Cincinnati District Salvage Board.

In the reorganization of the du Pont mpany's activities, C. W. Phellis, sales director of the explosives department, has been appointed general director of sales, which position carries with it the supervision of the various sales departments, each of which has its separate director.

AMERICAN DYESTUFF REPORTER

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Let Everyone Help

An Editorial

The Indigoid Vat Colors

Part III

By G. A. Haley

AMERICAN
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"Circulated Everywhere Dyestuffs are Used"

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AMERICA IS READY

Conference Last Week Results in Apointment of Committee of Color Makers and Consumers to Advise War Trade Board on Imports

AFTER months of conferences, discussions, resolutions and general propaganda work, the efforts of those most closely concerned with the American dye industry to establish some means whereby the industry might be allowed its rightful chance to develop, have borne fruit. Monday, May 12, has become a date of the very deepest significance to all elements of the industry, for it was on that date that the details of the plan for self-defence were decided upon and the machinery thereof assumed concrete form.

The emphatically expressed desire of the entire industry for an arrangement which would enable America to control dye imports after the manner of England, France, Italy and nearly every other dye-producing country which has felt the weight of the Hunnish incubus —and which one has not!—seems now to be practically assured of realization. All that remains is for the new Congress to transfer some of the powers now enjoyed by the War Trade Board to another Government department upon the conclusion and ratification of the peace articles, and the industry will have come into its own! And what is more, there seems now to be no reason why this cannot be done.

Meanwhile, the necessary organization has come into being and will begin to function. On the date mentioned above there was held in the New York office of Attorney General A. Mitchell Palmer, formerly Alien Property Custodian, a conference at which were appointed eight men representing the dye-making and the dye-using industries, who will in future advise the War Trade Board on all matters pertaining to the importation and distribution of foreign dyestuffs in this country. There were present at the meeting Mr. Palmer; Francis P. Garvan, present Alien Property Custodian; members of the Chemical Foundation, Inc., and of the War Trade Board itself. Prior to the meeting the last-named body had announced that licenses would be required for the importation of all foreign-made dyes, and the newly-created committee will aid in the intelligent administration of this measure.

Like the Trades and Licensing Committee of the British licensing scheme, the new board consists of four representative dye makers and four dye users. Like the British committee, it also has a ninth member who, presumably, will hold the deciding vote and whose position will be somewhat, though not wholly, analogous to the member of the British Board of Trade acting as chairman of the English committee. The members named to act in this capacity are as follows:

Franklin W. Hobbs, vice-president of the National Association of Wool Manufacturers, and president of the Arlington Mills.

Frank D. Cheny, member of the Silk Association of America, and president of Cheny Brothers.

H. B. Thompson, member of the National Association of Cotton Manufacturers, and president of the United States Finishing Company.

James D. Hammett, who has just succeeded Arthur S. Draper as president of the American Association of Cotton Manufacturers.

M. R. Poucher, president of the American Dyes Institute, and director of the Dyestuffs Sales Department of E. I. du Pont de Nemours & Co., Inc.

W. H. Watkins, of the National Aniline & Chemical Company, Inc.

August Merz, of the Heller & Merz Company.

Dr. Charles H. Herty, past president of the American Chemical Society and editor of the *Journal of Industrial and Engineering Chemistry,* whose speeches and writings on the protection of the dye industry of this country have been characterized by their outspokenness is favor of protective measures.

The ninth member, who will act as a trade advisor, is Dr. W. B. B. Penniwell, of John Hopkins University, who will lend his technical skill and advice to the War Trade Board and subsequently whatever Government department the restrictive powers may be delegated to, and to the committee of eight.

It is understood that where licenses to import are granted by the War Trade Board, the goods in question will be consigned to the Chemical Foundation, which will assume complete control as to allotment, price, etc., of the goods after they have reached this country. It is further understood that the Chemical Foundation will distribute imported dyestuffs through the various consumer associations.

While many of the details of the working of this licensing and distributing organization will, of necessity, have to be developed in actual practice, there is no doubt but that the machinery for the effective protection of the American industry has been established by this action. While the life of the War Trade Board is not unlimited, it is confidently believed that before it expires Congress will have taken the necessary steps to delegate to some other Government department the more or less permanent continuation of the restrictive powers now in force.

Such are the details of the action for which the dye industry has been waiting ever since the armistice was signed and it became known that something must be done speedily or the industry would soon lose ground until it again became a nonentity. Such are the details of the step by which America is preparing to fall in line with the summary action by other countries. And it has not come an instant too soon.

Now that the action has been taken, and as one reviews the events comprising the history of the dye industry in this country, it can be seen that some such development was almost inevitable from the start. Only we were slower about getting to it than the other countries, and this occasioned no small amount of perturbation on the part of the dye manufacturers and consumers, and undoubtedly hurt business, as uncertainty of any kind is bound to do. Presumably this delay resulted from the form of government under which we live, which, very properly, does not lend itself readily to rapid, radical departures from the established order of things. But it is here at last and close upon its heels should come fresh confidence, accompanied by a speedy resumption of orders.

Nearly six months ago representatives of the dye producing and consuming industries voiced their desire for an action of this sort at the meeting in Washington at which it was voted to discontinue the Dye Section of the War Trade Board. Since then appeals have been numerous, and both elements of the trade—the makers and the users—were becoming increasingly upset, until conditions had become about as unsatisfactory to both parties as could well be. It was felt that something would be done beyond a mere alteration of the tariff, yet no one knew just what it would be—or whether the step decided upon would be adequate after it *was* taken—and much chafing and unhappiness was the order of the day. No, the action at the conference last week did not come any too soon.

Perhaps, however, there was some inkling among the Powers That Be of what was to come. At any rate, Secretary Redfield mystified not a few when he said nearly a month ago to a representative of the daily press, *apropos* of reports that Germans were planning to charge Americans four or five times the prices received for dyes before the war when they came to exchange them for food:

"The only thing I can say about these reports is that a plan for the exchange of dyes for our food is being worked out, but nothing of a definite nature has been done. I can only emphasize that there is really no reason to have any apprehension regarding the situation. *I believe that we have it well in hand.*"

(*Conculded on page* 15.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

LET EVERYONE HELP

There should be every cause for jubiliation in the dye and the dye-consuming industries over the outcome of the conference held Monday of last week in the office of Attorney General A. Mitchell Palmer which resulted in the appointment of four representatives of both factions, respectively, to advise the War Trade Board and, later, its successor, in matters relating to the importation of all foreign-made dyes into this country. By this action, and through the organization of the Chemical Foundation, Inc., the United States is at last assured that whether Germany likes it or not, whether she plays marbles or sulks, we shall have a self-contained, self-supporting dye industry, together with all in the way of a protected textile industry and an unchallengeable supply of important drugs, medicinals and explosives which the possession of such a thing implies.

The importance of the move cannot well be over-emphasized. All doubts have been banished and the backers of the industry can feel free to carry out whatever plans for expansion they may have in mind, secure in the knowledge that they will be given a chance to develop to the utmost. Business should improve, and this improvement should be felt within a week or two. Definite assurance has been given that the textile industry is solidly behind the dye manufacturers in their determination to gain adequate protection, and continued co-operation from this source is certain because of the ample representation which the textile industry enjoys in the administration of the scheme. We are beginning a new epoch in the history of the American dye industry under the happiest of circumstances.

The Sixty-sixth Congress meets for the first time to-day. Political wiseacres are predicting that the coming session will be one of the most bitter and stormy in the history of the country. This may or may not be true, but it seems reasonably certain that the curved dome of the capitol will look down upon no "love feast" at that. The war is over; party feeling, so long pent up, has at last broken all bounds, and even within the parties themselves there are disagreements and bitterness. More than customarily will questions be decided by votes along party lines, and into this whirlpool of factionalism, seething with the discussions of international as well as national affairs, must the plea for recognition of the dye industry be thrown.

And it will be well to remember that, logical as it may appear to those possessed of a full knowledge of existing conditions, there are certain to be many members of Congress to whom the scheme for protecting the dye industry will appear in the guise of a radical and possibly dangerous departure from established precedent. In that case, the only way the perplexed Solon can judge if it be desirable or not is by listening to the utterances of both camps—the "pros" and the "cons," as it were.

Likewise, although the vast majority of producers and consumers have declared for the measure, there is certain to be found, among ourselves, a minority to whom the scheme will not appeal, or who can detect possible flaws in it. This is the time for them to begin bombarding their trade journals with missives of criticism, and to call attention to their own acumen at banquets by pointing out that the fourth word in the third line of Paragraph 2 should be thus and so instead of so and thus.

For the love of Henry Perkin, DON'T! We believe in the free exercise of free speech as much as does the most vociferous soap-box orator who was ever sentenced to make little rocks out of big ones for disorderly conduct, but the present move is altogether too big and too serious and too vital to too many people and to too many industries to be jeopardized by a few hair-splitting grammarians who would have refused to sign the Declaration of Independence on the ground of a split infinitive.

When an actor works on a small stage in a little theater, he can make use of quick, subtle and intimate gestures which his audience, to a man, will see and comprehend instantly. On a large stage, however, like that of the Manhattan Opera House or the New York Hippodrome, these gestures must be broadened and expanded out of all semblance of naturalness or the spectators—except those in the front rows—will fail to see them at all. This is a well-known artifice of the theater, and, in stage parlance, the actor who is a master of its technique makes his scenes *register* effectively.

Bear in mind, then, that the benefits of a self-contained dye industry depend almost solely upon the ability of producers and consumers of dyes to *register* a *unanimous* desire for this protective measure upon its Congressional audience. Criticisms of minor points of the scheme, however well founded, cannot but produce an effect of internal disagreement out of all proportion to their real significance. Just now we wish ardently to get something *done;* it is a choice of accepting the present scheme or depending upon an admittedly inadequate tariff amendment. Therefore, we would counsel a second or even a third thought in every case before publicly expressing unimportant criticisms of the chosen plan. Even those who believe it certain to meet with the approval of Congress will agree that it is always well to allow a margin of safety. We must never forget for a minute that every trifling criticism suppressed helps to widen this margin. There will be other sessions of Congress, when changes can be made. Just now we must *register absolute unanimity.*

WE DID OUR DUTY

Too much cannot be said in praise of the manner in which the various elements of the chemical industry in its entirety responded to the Government's appeal to "finish the job" by supporting the Victory Liberty Loan. The quota assigned for the Chemicals, Paints, Drugs and Oils Division—which includes the dye industry—in the Second Federal Reserve District was $32,000,000. The amount subscribed was in excess of $28,000,000 up to the time when the REPORTER went to press, with still more coming in.

But, the reader will instantly say—rapidly counting in millions—either the printer made a mistake, or . . . can it be? . . . the Chemicals, Paints,

(*Concluded on page* 12.)

WE DID OUR DUTY

(*Concluded from page* 9.)

Drugs and Oils Division failed to "go over the top."

Quite so. This division failed to subscribe the allotted amount. And thereby hangs a tale. When the REPORTER man went to Liberty Loan headquarters in New York in order to gather material with which to send warm thrills of pride and satisfaction chasing one another merrily up and down the host of sturdy spines which go to make the American chemical and dye industries what they are, someone said, "Oh, you won't want to print anything about it. They didn't make their quota." But the REPORTER reporter hails from a well-known State in our justly celebrated Middle West, and went to the office of William S. Gray, chairman of the committee in charge of the division, who sent him to H. C. Woodruff, of the National City Company, the committee's secretary, who in turn turned over to our perspiring information-hound the following facts:

Someone had blundered! Through an error or something similar the quota for the Chemical Division was made $32,000,000 when, along with other quotas, it should have been made just three-quarters of the Fourth Liberty Loan allotment, or $26,000,000. Both Mr. Gray and Mr. Woodruff tried repeatedly to have the mistake rectified, but the prophecy had gone forth and could not be recalled in time. Twenty-six million dollars from $32,000,000 leaves $6,000,000, and, working against a $6,000,000 handicap, Mr. Gray and Mr. Woodruff—and the committee—went out and whooped her up for $28,000,000—with subscriptions still coming in—and brought the Chemical Division home a winner to the tune of $2,000,000 on elapsed time, Q. E. D.

Wherefore, we repeat that too much cannot be said in praise of Mr. Gray, Mr. Woodruff and the committee for their efforts, and of the Chemical Division for the substantial backing given its determination to help finish the job. The "boys" promised not to come back till it was over "over there," and we for our part promised not to back out till it was all over over here. Now it *is* over—"over the top" to the extent of a billion and a half oversubscription for the Victory Liberty Loan. And in this performance the various elements of the chemical industries did their full duty. Figures cannot lie; and although they apparently do in the present instance, the chemical industries "made good," with $2,000,000 to spare.

The General Chemical Company has declared a quarterly dividend of 2 per cent, payable on June 2.

To provide for general business expansion, the Brocalsa Chemical Company, Pomeroy, Ohio, a Delaware incorporation, has increased its capital from $100,000 to $325,000.

THE INDIGOID VAT COLORS

By G. A. Haley

(*Concluded from last week.*)

(Note—It must be borne in mind that since the following article is the work of a writer in England, all references to "this country" mean the British Isles and not America.—Ed.)

Wool Dyeing

The dyeing of wool with these coloring matters closely resembles the well-known procedure for indigo as carried out in the hydrosulphite vat, the colors being reduced and dissolved by means of hydrosulphite and a minimum of caustic soda. Whereas certain of the members, *e. g.*, Durindone Red B and Durindone Blue 4B, reduce and dissolve with the same ease as does indigo, others require somewhat different treatment, and a knowledge of their special characteristics is required to obtain maximum efficiency. The differences between the various members of the series consist chiefly in the ease with which they are reduced and dissolved. Durindone Blue 6B, Durindone Red Y and Durindone Scarlet R may be cited as instances of colors requiring a somewhat larger quantity of hydrosulphite and caustic soda than is necessary for indigo, and the dissolving of these colors is assisted by an addition of Turkey Red Oil to the stock vat. It should also be remembered that, whereas indigo can be dissolved to a stock vat of almost any desired concentration, the less soluble brands require correspondingly more water. In the case of Durindone Blue 6B this feature is particularly important, and the color is advantageously reduced and dissolved in the dye-vat rather than in the form of a concentrated stock vat. A study of these colors in wool dyeing reveals many interesting phenomena, one of which may be referred to here. Durindone Scarlet R, a color giving very pleasing red shades on wool, dissolves to a clear yellow stock vat only with relatively large amounts of caustic soda and hydrosulphite. Using smaller amounts the stock vat remains cloudy and red in color, pointing to incomplete reduction and solution. It is found, however, in dyeing that the faulty-looking stock vat gives deeper shades than the clear stock solution, and contrary to expectations the results appear to be quite normal in fastness.

The dye-vats are prepared and fed with ammonia hydrosulphite, glue, and stock vat as required, the material being worked beneath the liquor at 120 deg. to 140 deg. Fahr., as with indigo. Many of the indigoid vat colors reoxidize on fiber less rapidly than indigo, and some, which do not oxidize completely by mere exposure to the atmosphere, must be allowed to lie warm, or require rinsing in a hot acid solution, after dyeing.

In attempting to estimate the value of the indigoid vat colors for wool dyeing it is necessary, quite apart from price considerations, to consider whether the results which they are capable of giving compensate for certain disadvantages attached to the vat method of dyeing. Of these disadvantages the most serious are, first, the difficulty of combining the colors, owing to different degree of exhaustion, and, secondly, the rather minute care and attention which vat colors undoubtedly demand in dyeing. That these difficulties are, and will remain, insuperable seems improbable, the more so as the same objections were at one time urged against vat colors on cotton and time has, of course, shown that the difficulties could be overcome.

To the credit of these colors must be placed the brightness of shade combined with the really excellent fastness to such influences as light, milling and cross-dyeing, and there is undoubtedly a future for certain members of the series, particularly in self shades for high-class work on loose wool, and possibly yarns. Whether in course of time it will be found practicable to dye vat colors on wool in combination shades depends very largely on whether or not a suitable range of colors of similar dyeing and exhausting properties is evolved.

An Important Quality

One feature of considerable importance remains to be mentioned. The makers of indigoid vat colors have claimed as a recommendation that wool dyed at the relatively low temperature of the vat retains its softness, qualities and spinning properties unimpaired, whereas these suffer to a greater or less extent on dyeing at the boil, particularly where metallic mordants are employed. Inquiry amongst dyers who have made large-scale experiments in this method of dyeing has elicited replies fully confirming this contention, and further support is lent by experiments carried out some years ago in Germany. The German military authorities, who dealt with matters of army clothing and equipment much more thoroughly and scientifically than our own Army Clothing Department attempted to do, made an exhaustive investigation into the suitability of various classes of dyestuffs for dyeing wool for uniforms. They came to the conclusion that of all colors used in these trials the indigoid vat colors were the most satisfactory owing to the fact that cloths produced from vat-dyed wool were softer, lighter and less permeable than those dyed by other processes. Moreover, vat-dyed wool gave less noil, and it was stated that a second-grade wool dyed with vat colors gave a cloth equal in quality to that made from a first-grade wool dyed with chrome colors.

From being a luxury, as they were only a few years ago, the vat colors have rapidly become a necessity. They have made possible altogether new methods of colored textile production and have led manufacturers, merchants and the general public to insist, in many classes of colored goods, on a standard of fastness formerly unknown. Their excellent properties have won for them a permanent place in the modern dyehouse, and no color user who wishes to remain abreast of the times can afford to ignore them. Amongst the vat colors those of the indigoid series occupy a position of considerable importance.—*Dyer and Calico Printer.*

AMERICA IS READY

(*Concluded from page 7.*)

In the same interview, he said:

"I don't think we need worry about the matter, and I believe that we have the situation well in hand. Recently Mr. Henry Wigglesworth, who was connected with a large American dye concern, called on me and told me that there were many reports current in connection with the German dye situation.

"He wanted to know what the situation really was, and I told him that there appeared to be no real foundation for the belief that Germany was heavily stocked with dyes. At the same time, I suggested to Mr. Wigglesworth that he might connect with the department and go abroad to make a study of the dye situation. Mr. Wigglesworth accepted the invitation and entered our service. He is now abroad, gathering information that will undoubtedly be of much value to American dye interests. It is likely that this information will be available in the near future."

Whether or not Mr. Redfield had the present result of the industry's plans in mind is problematical, but his reference to Mr. Wigglesworth's activities may have some connection with the recent report to the effect that there is now at Washington, in the office of the Alien Property Custodian, a list of twenty-five million pounds of dyestuffs ready for shipment into this country. If this is authentic, the appointment of the committee of eight *certainly* did not come any too soon.

It represents a new departure from established methods, but these are still extraordinary times and the need for a self-contained dye industry, with all its ramifications, was an extraordinary need. We may now feel that the question is well on the way to being settled once and for all, and settled in such a manner as to insure absolute fairness toward both producer and consumer alike. In short, we may now feel that the black threat of ruinous competition from the Hun which was promoting unrest and fretfulness, has been effectually eliminated for all time.

EXPERIMENTING WITH NEW ZEALAND COPROSMA DYES

Specimens of New Zealand dyes, made from several species of coprosma (grandifolia, areolata, foetidissima and lucida) by Mr. B. C. Aston, chemist to the New Zealand Department of Agriculture, are shown in a recent issue of that department's journal. The colors range from yellow and brown and red, through intermediary tints, to black. Wool treated with these dyes was exposed during the whole of a winter month to rain, wind and sunshine, and only one color (the yellow of foetidissima) faded. There dyes, according to the *Journal*, can be made easily by any household.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

H. P. C.—Question—Since the war we have been unable to obtain a satisfactory substitute for the German photographic filter dye known as "Light filter Yellow K". Can you name a dye to take its place?

Answer—Yes. The sodium salt of Glucosephenyloazone-p-carboxylic acid will produce the same results.

W. A. A.—Question—We would like to know the absorption spectra of Malachite Green, Acid Green J, and Patent Blue?

Answer--Each shows three bands; one in the visible spectrum, one at the point between the visible and invisible portions of the spectrum, and one in the ultra violet.

G. I. G.—Question—What is the address of the Chemical Foundation, Inc., and what is the capital stock of the organization?

Answer--The Charles F. Noyes Company have leased the entire fourth floor of the Irving Trust Company Building at 83 Fulton Street, for a long term of years. The capital stock is $600,000.

H. W. N.—Question—In your opinion, will the artificial silks take our aniline dyes in the same manner as cotton?

Answer—Chardonnet, Viscose and Cuprammonium silks will, but that of cellulose acetate being a compound, must first be saponified before it will dye with direct cotton, sulphur, acid or vat colors.

C. H. STONE TO MANAGE SALES FOR ATLANTIC

Charles H. Stone, for a number of years with the National Aniline & Chemical Company, Inc., and one of its component companies, the W. Beckers Aniline & Chemical Works, Inc., has just become associated with the Atlantic Dyestuff Company, whose works are located at Burrage, Mass., in the capacity of vice-president and sales manager.

Mr. Stone's first connection with the dyestuff industry was in 1905, with the Farbenfabriken of Elberfield Company, receiving his training under Dr. William G. Beckers, then its technical head, since which time he has been associated more or less closely with Dr. Beckers almost without interruption.

For the time being Mr. Stone will divide his time between the Boston and New York offices of the Atlantic Company.

TO ASK CONGRESS FOR LICENSING COMMISSION, SAYS GARVAN

Speaking before the students at Yale University recently, Francis P. Garvan, successor to Attorney-General Palmer as Alien Property Custodian, emphasized the need for university co-operation in building America's chemical industry of the future, and necessary measures for protecting the dye industry.

"We must educate men more in chemistry," said Mr. Garvan. "To protect the work that is being done we are going to ask Congress for a license law governing all chemical importations. In this we ask no more than England, France, Italy and Japan have already decided to grant. The Chemical Foundation proposes to bring about a closer union between the university and the factory and to encourage chemical research through the co-operation of the eductaional institutions of this country with the forces already at work."

NATIONAL'S NEW CARD FOR ARTIFICIAL SILK

"The Dyeing of Artificial Silk" is the title of a new color card (No. 20) just issued by the National Aniline & Chemical Company. The card contains forty-eight dyed samples prepared with "Viscose" silk, which is similar to "Glanzstoff" (Elberfield silk) in dyeing properties. Twenty-four of the shades are obtained with direct colors, including Erie Fast Red FD, twelve with direct colors developed, and twelve with basic colors.

The shades shown are: Direct colors; Erie Yellow KM, Erie Fast Yellow WB, Erie Yellow F, Erie Orange Y, R and 2R; Erie Brown C, Erie Fast Brown GR and 3RB, Erie Pink 2B (.1% and 1%), Erie Delta Red 2B, Erie Congo 4B, Erie Red 4B, Erie Fast Red FD, Erie Garnet B, Erie Violet BW, Niagara Blue G Conc., Niagara Blue 3B, Niagara Sky Blue, Erie Green MT, Diazine Black H Extra, Erie Black GXOO and Erie Black NR Extra.

Direct colors developed; Primuline NAC (three different after-treatments), Diazine Bordeaux N, Erie Fast Brown 3RB, Diazine Black H Extra (1¾% and 4%), Diazine Scarlet M, Diazine Gray DB (¼% and 2%) and Diazine Black 3R (4% and 5%).

Basic colors; Auramine O, Chrysoidine Y Extra, Chrysoidine 3R, Bismarck Brown 53, Safranine A and 6B, Fuchsine P, Methyl Violet 2B Conc., New Blue DA Conc., Methylene Blue BB, Victoria Green WB and a special Black for artificial silks.

NEW POCKET EDITION OF FALL COLOR CARD

The popularity of the American color cards is illustrated by the fact that the Fall 1919 Season Card recently issued by The Textile Color Card Association of the United States has been in such demand as to necessitate the association putting out a pocket edition of the card. The colors, thirty-two of which are in silk and ten in wool, are exact duplicates of those on the regular edition. In place, however, of the usual cloth binding, this new card is made of lightweight cardboard, with the ribbons and woolen samples cut and pasted to the card.

It has been pointed out that the advantages of cards of this kind are many. Convenient to carry and easy to mail, they will be found suitable by those needing quantities of cards for distribution purposes, especially in the exporting trade, where the American cards are now being used extensively.

It is not amiss to predict that The Textile Color Card Association may find the need of issuing a pocket edition of the Standard Card, which contains 128 colors. If such a card is issued, it will undoubtedly make for a far wider circulation in domestic and foreign markets.

The pocket edition of the Fall 1919 Card is sold only in quantities of twenty-five and over. Single copies cannot be purchased.

NEW WETZEL COMPANY

Announcement has been made to the trade by Fred. Wetzel that he is now doing business under the name of the Wetzel Dye & Chemical Company at 131 East Twenty-third Street, New York, and that Stuart M. Chambers, well known in the textile trade, has joined this new organization as sales manager, and will give his special attention to all laboratory work undertaken by the concern. Products handled include aniline dyes, heavy chemicals, drugs, pharmaceuticals, oils, soap and kaolin.

NOTES OF THE TRADE

Under the laws of Delaware, the Mountain Varnish and Color Works have been incorporated with a capital stock of $1,500,000.

The Chemical Foundation, Inc., America's future watch-dog of the dye industry, has leased the entire fourth floor of the Market and Fulton Bank Building, 81-83 Fulton Street, New York.

Alleged failure to pay for consignments of logwood extract has been made the basis of a suit brought in the Supreme Court of New York County by F. E. Atteaux & Co., Inc., Boston, to recover $48,942 from Hensey & Co., exporters, of 17 Battery Place, New York.

Ellwood Hendrick, of "Everyman's Chemistry" fame; J. R. M. Klotz, Henry M. Toch, Edward Weston and Allen Rogers were all re-elected as president, secretary, treasurer and trustees respectively of the Chemists' Club in the recent annual election of that organization.

At a cost of $14,500 the National Aniline & Chemical Company will build a brick laboratory and locker building at its Buffalo plant.

The Anglo-California Aniline Dye Company has purchased the plant of the U. S. Aircraft corporation, Redwood City, Cal., and will make additions and improvements to the extent of $50,000. Aniline dyes and kindred products will be manufactured.

Essences, flavoring extracts and perfumeries will be dealt in by the firm of Fritzsche Brothers, which has been incorporated under the laws of New York with a capital of $1,000,000 by J. Koehler, F. H. Leonhardt and F. E. Watermeyer, 82 Beekman Street, New York.

AMERICAN DYESTUFF REPORTER

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May 26, 1919

IN THIS ISSUE

Seeing Switzerland

Part I

Some Characteristics of the Swiss, Prompted by the Approaching Visit of Color Makers from that Country, Together with Facts About the Society of Chemical Industry in Basle.

No Pikers Need Apply!

An Editorial

The Importance of By-Products in Achieving Dye Independence

By R. Norris Shreve

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

Vol. 4 New York, May 26, 1919 No. 21

SEEING SWITZERLAND

"High as the Alps in Quality" Applies to More than One Product of the Country of Cantons—Ideal Citizens and Dyestuffs Among Specialties

WHEN, some three months or so ago, while times were dull and business slow, the information came to hand that learned men from Switzerland were coming here to visit, a mild sensation ran the rounds which grew and spread by leaps and bounds till now each wagging tongue propounds the inquiry: "Why is it?" Dame Rumor has made bold to say our visitors would pave the way for canny, staid Swiss enterprise to bring some plants for making dyes within our very gates—in fact, these sons of Will'um Tell may bring machinery as well and likewise personnel to dwell in these United States.

The reader may recall to mind our demon Editor opined the Swiss would scarcely be inclined to come among us, unless the dyes we make to-day had not most clearly come to stay, with ne'er a pessimist to say: "The Germans stung us!" The Swiss, we claim, will do no harm (these words should countless fears disarm); there is no cause to take alarm at coming Swiss migration. The motives 'neath the Swiss intent are not as hostile schemings meant—but rather as a compliment!—and ground for high elation.

At any rate, the time draws near; these gentlemen will soon be here, and we, in speculative mood, forthwith will venture to conclude (with your permission) that now some dope about the Swiss might not be utterly amiss—but first please make a note of this: Avaunt, suspicion!

II

With the above section of Walt Masonry safely out of the way the reader may now give his attention with less effort to what is in some respects one of the most unique nations on the face of the earth. The country which we call Switzerland could be placed in the territory occupied by Delaware and Maryland without straining the boundary lines of these two States, and the population of the whole country is less than the population of the city of New York (3,800,000 inhabitants, of which 550,000 are foreign residents); yet this country has, upon occasion, played no small part in the world's affairs and has shown an ability to take care of itself surpassed by none of its weight and inches.

The Swiss are noted for their sturdiness, thrift and independence of spirit. Every Swiss boy is raised to be a soldier, but only to do battle in case the rights and freedom of his own country are threatened by a foreign power. Hence, the Swiss are a military people, but are not in any sense of the word a militant people. The country is divided into "cantons" (*not* cantonments), or small States, of which there are twenty-two, and among the inhabitants we find no less than four different languages spoken. The rule seems to be that the people speak the language of the nearest neighboring country; thus, in the south, Italian is spoken; to the west, French; to the north and east, German, while in the single canton of Grisons, and nowhere else, "Ladin" is spoken. This last has been defined as "a laggard sister of French and Italian." Edwin A. Grosvenor says of the Swiss: "Diversity and tolerance were their characteristics from the first . . . their twenty-two small States, differing from each other in nearly every point, religious, political, social, industrial, physical and linguistic, constitute a federal republic which in maintenance of public welfare, individual rights and general harmony is unsurpassed among the political creations of all time."

When Switzerland is mentioned one immediately thinks of the Alps and mountain-climbing, clocks and watches, cheese and chocolate—and the yodlers who were billed on the Chautauqua program with William Jennings Bryan! It is quite true that the Swiss specialize in all these things. They are, however, primarily an agricultural and stock-raising people; many of their other activities are used to eke out a precarious livelihood during dull seasons. The textile industry flourishes there, laces playing an important part; education and technical instruction are well attended to, and, logically enough, the hotel business is ranked as one of the great industries of the country. They have also, be it known, a most excellent and long-established dye industry.

Naturally, this is no news to readers of the REPORTER; nevertheless, American dyestuff consumers have in many instances failed to recognize the importance of the Swiss dyestuff industry, and its benefit to themselves. For more than forty years it challenged and fought the German dye monopolists. Before the Great War began it was practically the only competition felt by the Germans. While the American industry was slowly developing during the war period it was virtually our only source of supply for coal-tar dyes, and incidentally was a large purchaser of American raw materials, thereby contributing largely to the development of the American industry as a whole.

These facts are most clearly illustrated by the history of Synthetic Indigo, which the Society of Chemical Industry in Basle was the first organization in the world to manufacture.

During the period between 1911 and 1914 American consumers benefited to the extent of millions of dollars owing to German price-cutting in a vain attempt to kill off Swiss competition in this dyestuff. The price went from 18 to 16.4 and finally to 14 cents per pound, but to no purpose. And yet the quality of Swiss Synthetic Indigo—as well as their other dyestuffs — has been unsurpassed. This, coupled with the fact that the Swiss Synthetic Indigo is half Swiss and half American, makes it wholly in order and almost a duty for American dye consumers to give Swiss manufacturers a fair share of their patronage.

The best known and most important of the Swiss dyestuff manufacturers is the society mentioned above. This establishment dates back to the year 1864—not so many years after Sir Henry Perkin discovered the first coal-tar dye—when it was founded by A. Clavel. Nine years later the name of the firm was changed to Bindschedler & Busch, while in 1885 a limited company under the present style was formed. In 1898 the aniline color works of A. Gerber & Co. in Basle were amalgamated with the

Society of Chemical Industry in Basle, while ten years later, in 1908, the Basle Chemical Works completed the present organization by joining forces.

The development of the Basle coal-tar color industry began in 1859, the year of Perkin's famous discovery of the so-called Mauvein, the first dyestuff of the safranine group.

Magenta has been manufactured at Basle since 1860 by the firm of Gerber-Keller, which was amalgamated with the Society of Chemical Industry in Basle in the year 1898, and shortly afterwards the society, at the time under the name of A. Clavel, placed Martius Yellow and Magdala Red on the market, a dyestuff showing magnificent fluorescence in alcoholic solution.

In 1878 the society took up the manufacture of Green crystals (Malachite Green) by introducing the use of lead superoxide as oxidizing agent for the transformation of the leuco compound into the dyestuff. In connection herewith Helvetia Green (sulfonated Malachite Green) and Nitromalachite Green may be mentioned. Some few years later (1883) a new and elegant synthesis of hexamethylrosaniline was found whereby the well-known Violet crystals was obtained. Closely related to this synthesis is the rational method of the technical manufacture of phosgene produced for the first time on a large scale in the workshops of the society and which has become a product of considerable importance, since it is likewise extensively used for the manufacture of various pharmaceutical products—e. g., carbonates of guajacole and of creosote. The further elaboration of the above synthesis, which was carried out in conjunction with the Badische Company, led to a new synthesis of dyestuffs of the triphenylmethane group and in rapid succession the Violet crystals was followed by Ethyl Violet, the various Victoria Blue brands (B, R and 4R), Night Blue, Auramine (produced by the action of ammonia on Michler's Ketone), further various Acid Violets (7B, 4BN, 6BN), Alkali Violet and Wool Green S.

To the same group of triphenylmethane colors must further be counted Solid Green 2B and 3B obtained in 1883 from Dichlorbenzaldehyde and Glacier Blue (1894).

Pure blue acid dyestuffs of the triphenylmethane series, not changing shade in artificial light, were obtained at this period by the Society of Chemical Industry in Basle, and the year 1892 brought the discovery of a new dyestuff of the Auramine series, the well-known Auramine G.

The society had in 1890 produced basic mordant colors of the triphenylmethane group by condensation of Michler's Ketone with pyrogallic acid. These dyestuffs, known as **Violet P** and Violet DP, yield violet shades fast to milling on chrome-mordanted wool.

In the year 1887 the Badische Company placed a new group of red basic triphenylmethane dyestuffs under the name of Rhodamines on the market which in their chemical constitution are closely related to the fluorescene discovered by Ad. Bayer in 1871. The first representative of this class of dyestuffs—a diphenylrhodamine—had been produced some years previously by the Society of Chemical Industry in Basle, but on account of its insolubility in water this product was of no tinctorial value. In 1888 this compound and analogous products were sulphonated and transformed into soluble violet acid dyestuffs.

A further invention of the society in 1888 was of great importance for the technical production of the Rhodamines. This new discovery proved in many other respects to be of fundamental importance, for it opened the road to the technical production of amidophenols of the benzol and naphthalene series and laid the foundation of the manufacture of a number of amidonaphtols and amidonaphtolsulphonic acids which have become exceedingly important primary materials for the production of azo dyestuffs. The invention led to the collaboration of the Society of Chemical Industry in Basle with the Badische Company in the field of Rhodamine; the G and B brands, already on the market, were followed by Rhodamine S, which possesses the peculiarity of dyeing unmordanted cotton.

By treating an alcoholic solution of Rhodamine B with mineral acid the Society of Chemical Industry in Basle succeeded in the year 1892 in producing Rhodamine 3B and Rhodamine 6G (Ethylethers of the tetraethyle- or sym. diethylerhodamine) and various other asymmetrical Rhodamines, such as Rhodine 3G (Irisamine) and Rhodine 2G, discovered 1894 to 1896 by the Basle Chemical Works. *(To be concluded.)*

With a capital of $10,000 the Goold Textile Company has been incorporated under the laws of New York to deal in textiles. Headquarters will be in Brooklyn, and the incorporators are Michael Schultz, David Tullman and Louis Schnitman.

A chemical engineer in France desires to secure an agency for the sale of chemical and pharmaceutictl products and dyestuffs. Correspondence should be in French. References and further details may be obtained by addressing the Bureau of Foreign and Domestic Commerce of the Department of Commerce, Washington, D. C., or any of its branches.

THE IMPORTANCE OF BY-PRODUCTS IN ACHIEVING DYE INDEPENDENCE

By R. Norris Shreve

The war has awakened American business men and American bankers to the importance of the entire chemical industry and the financiers and business men in particular have given ungrudging support to the coal-tar dyes. As a matter of fact, some financial men have been badly bitten already by reason of venturing into this most complex field without adequate understanding of its problems and ramifications. Right here seems to me to be a field wherein the chemists can be of great service to themselves and also to the industry by guiding the American business men along the sound lines of investment, and also of development, without which the integrity of the primary investment cannot be preserved.

The dyestuff industry is one that cannot stagnate and live. It must develop or retrograde, and this development must depend absolutely upon the original research work of the chemists. As an editorial in the *Textile Colorist* says: "The dyestuff factory cannot progress, or even exist, upon the cast-off products of other factories. The history of the dyestuff industry shows that financial success follows the research laboratory, and the research laboratory only; the other path leads to failure and disaster." I feel sure that these points are apparent to any chemist who has studied this industry, but it is through the chemists that these facts must be brought home to the business men and the financiers who are directing our industry, and who, in too few cases in our country, have had chemical training and experience.

To be sure, the American business man adequately realizes that by increasing yields and qualities of products he is now manufacturing, he places his business in a position to earn greater profits or to meet more rigorous competition, but the men who are directing our industry must be brought to know that future security will come to those factories only which maintain and follow the creative work of their research chemists.

Necessity of Research

American directors of dyestuff enterprises must be brought to a realization of this most important point, and to see that dollars spent researching into the unknown along the lines shown by trained experience to be most promising will reap a golden harvest. Such has been the lesson of the past. The convincing of the managers of the dyestuff industry of this fact is as much a part of the work of our chemists as is the carrying out of the laboratory or manufacturing procedure.

The relative condition of the industry in Germany in comparison with England and other countries just before the war demonstrates the importance of this creative research work absolutely and finally.

It was not the lack of chemists in England that prevented her dyestuff industry, with its favorable start, from developing as Germany's did, for the lack of these chemists would have been supplied immediately had the demand for them appeared. Englishmen directing their dyestuff industry simply did not recognize the paramount importance of the creative research work for the permanence and development of the industry, and from being initial pioneers they became content largely to trail behind the German effort.

Since the war England has been going ahead on a more rational basis, and we in America here must take to heart the experience of the past in Germany and in England and carry through into full growth the industry of the coal-tar dyes.

Value of By-products

I feel that by the meetings of those chemists interested in dyestuffs we can go a long way toward furthering the permanent growth of coal-tar dyes in all their complex ramifications here in America. I do not mean to infer that the accomplishments of the American dye manufacturers and American chemists in recent years, and in the years since the war started, have not been worthy of pride—far from it—but I do not feel that we have been pioneers except in a most occasional instance. To be sure, the pioneering must be done along business as well as scientific lines. What may be good business for one factory with certain classes of products and by-products might be very bad business for another factory with different products and by-products.

This development of by-products is a most important one, and one that in the haste to turn out a given intermediate or dye, the American manufacturer is prone to neglect. Dr. Hesse lays great emphasis on by-products, and writes of them as follows: "Broadly speaking, the entire coal-tar industry is a complicated maze of network of interlocking and interlacing products and by-products; these are great in number but, in most cases, small in volume individually. In numerous instances the very existence of the by-products was the sole directing cause for the invention of new dyes and classes of dyes."

The American manufacturer has always tended to bulk production, and this has also been true in England. This is undoubtedly the best policy to a certain extent, but our manufacturers, especially of dyestuffs, must realize

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

NO PIKERS NEED APPLY!

In the days of our early West, during that period following the glory of the "Forty-niners"—the days of which Mark Twain, Bret Harte and a host of others wrote so picturesquely and so amusingly—there became current an expression born of a fear that the influx of Irish immigrants which had then started would get beyond control. The expression was, "No Irish need apply!"

Times and viewpoints have changed; this expression would be laughed at to-day, and very few remember it, but it is sufficiently forceful and vivid to lend itself readily to other things.

Among the things to which it might well be applied is the subject of criticisms of the scheme for protecting the American dye industry by the appointment of a committee of four color makers and four color users to advise the War Trade Board and its successor in the matter of licensing imports of dyestuffs. And in this case we would amend it to read as given in the caption above.

As was pointed out in the REPORTER last week, there are bound to be criticisms. People are but human, and no two can see things from exactly parallel viewpoints. Even those who approve most heartily of the scheme are quite likely to see certain minor details in which it could be improved. In such cases, true greatness and breadth of vision are best proved by keeping silence. This is a free country; but just now the industry is trying to "register" harmony and singleness of purpose, to the end that those in Congress who are chary of the idea may find nothing tangible with which to oppose it in debate. Therefore, it must readily be discernible that if your criticism is of this variety it were better left unuttered, for opponents of the scheme can make capital out of the slightest evidences of doubt in the minds of its well-wishers.

On the other hand, if your criticism is something which really strikes in clean-cut fashion straight at the heart and principle of the scheme, by all means let it be heard. He who has a better plan to suggest is no friend to the dye industry if he fails to indicate it, nor will he do half as much damage to the chances of either his scheme or the original one as would a whole flock of picayune wranglers over abstruse points. More good legislation has been blocked by minority opponents, solely because well-meaning critics gave them ammunition to fire off on the floor of the State Assembly or Congress, than the general public would ever dream.

Hence, when objections to details of the proposed scheme arise within you, apply this test: If you are really a second Solomon and your scheme provides for a big, sweeping change from top to bottom—a change so logical and sound that the entire industry can be converted to it overnight—why, then, let us have it. Otherwise . . . "no pikers need apply!"

Now that Congress has convened we may look forward with interest to action resulting from the fourth resolution passed at the Chicago meeting of the American Institute of Chemical Engineers last January. The resolution referred to was: "Resolved, that the Congress be and hereby is requested to review, through the Tariff Commission or otherwise, the operation of the present Anti-Dumping Law as a preliminary to such revision and extension of its provisions as shall render it adequate for the requirements of the situation."

IMPORTANCE OF BY-PRODUCTS IN ACHIEVING DYE INDEPENDENCE

(*Concluded from page* 9.)

that they must have and offer a fairly complete line, or else the same thing will happen in America as Dr. F. M. Perkins stated happened in England, that is, the Germans came along with a newer, bigger and more complete line and took the business away from the domestic manufacturer. Therefore, this is another phase in which the chemists can contribute, namely, by so designing the plant and processes for those dyestuffs which have only a small market that they can be manufactured on a relatively smaller scale in a profitable manner. The economic laws of supply and demand, coupled with that amount of reciprocity that the law allows, will undoubtedly centralize the manufacture of those dyestuffs which have a limited market in the hands of one or two manufacturers, who will, in turn, exchange or sell these products for others for the same class manufactured in some other plant.

LOOKING TO THE FUTURE

From time to time, here and elsewhere, with regard to the general policies of chemical plants, the remark is made, "What does it matter if we are making money?" This policy is suicidal in the long run, for continued success will only come to those manufacturers who are always looking ahead and who view planning for the future as an important part of the daily task.

The Germans, in the conduct of their very successful dye plants, entrusted their direction largely, even up to the board of directors, to technically trained men. England did not pursue that policy in the time prior to the war, although she has changed somewhat since 1914. We must not forget the old proverb, and neglect to learn from our enemy. In my own opinion, this is an important reason for the German successes, and it behooves the owners of our dyestuff industries to call into their councils continuously their technically trained chemists and engineers, and this should be carried even up to the board of directors.

All in all, the work that lies before the dyestuff chemists of America is promising as to the future, judging by accomplishment of the past, and especially of the last few years.—*Journal of Commerce Annual Chemical Review.*

JAPANESE VEGETABLE DYESTUFFS

The following trees and plants have recently been investigated, and found to have value as raw material for dyes, according to the British *Board of Trade Journal:*

Pinus densiflora (Japanese: Akamatsu).—This tree is found throughout Japan in a wild state. A dark brown dye is extracted from the leaves, which are used for cotton yarn.

Pinus Thunbergia (Japanese: Kuromatsu).—This common variety of pine gives a dark dye. A certain factory in Kajawa Prefecture extracts this dye as follows: —Ten parts of fresh leaves are added to 3.3 parts sulphur and 10 parts sulphite of soda, and the mixture is heated with water for five hours. The resulting dye commands a ready sale.

Chestnut (Japanese: Kuri).—Also a common tree. Treatment of the bark with sulphide of copper gives a dye for saddlery wares. The leaves and bark also yield a black which is used for dyeing silk Laori (outer garments) The root gives a yellow dye used in staining furniture and similar work.

Quercus dentata (Japanese: Kashewa).—This tree is found generally in Japan. From a decoction of the bark a dye material is obtained, which is used for dyeing hemp, cotton, etc., khaki color.

Quercus serrata (Japanese: Kuereyi). —The leaves are collected in September and fermented. The fermented leaves are boiled, and both yield brown and deep green dyes.

Pomegranate (Japanese: Zakuro).—The bark of this tree gives a leather dye.

Pasania cuspidata (Japanese: Shii).—A dye for fishing nets is made from this tree.

Camellia Japonica (Japanese: Tsubaki).—The leaves when pressed fresh yield a green which is used in dyeing mosquito nets.

A tree called in Japanese "motekoka."—The leaves give a light brown dye.

Myrica rubru (Japanese: Yamaromo).—The juice extracted from the leaves and bark gives a dye used for fishing nets, also a bottom for Indigo dyeing. It is used in dyeing khaki uniform cloth.

Euleurites cordata (Japanese: Aburagiri), *Quercus gilve* (Ichii), Pagoda Tree (Enju), *Juglans sieboldii* (Quigurumi), *Raphiolepis Japonica* (sharimbai), and several other trees yield dye materials from their leaves, bark, or roots.

Of plants from which dyes may be extracted may be mentioned the *Swertia chinensis* (Tenburi), *Lespedeza pilosa* (Neko-hagi), and *Coptis* (Oren)

SAYS GERMAN COLOR MAKERS ARE READY FOR BUSINESS

Germany is seeking to regain its grip on world trade through its dyestuff plants, according to Major T. W. Sill, of the Chemical Welfare Service, in an interview with a representative of the New York *Tribune*. Major Sill had just returned from a visit to the occupied German territory along the Rhine, where the most important of the Teuton chemical strongholds are found. He was a member of an inter-allied commission appointed to investigate the production of war materials in the German chemical plants in the areas occupied by the American, British, French and Belgian forces.

Major Sill found the dye factories undamaged by the air raids of the Allies and any other results of the war, with machinery in perfect condition and with an adequate personnel of scientific experts and of trained operatives ready on the ground to turn their entire activities into the manufacture of colors and medicinals.

"No more striking evidence of Germany's conviction that she would eventually win the war and of her intentions then to begin to regain her commercial markets," Major Sill said, "could be afforded than the fact that even with the tremendous burdens thrown upon these plants for the production of explosives and poison gases, nevertheless certain portions of the plants were reserved and utilized for the continued production of dyestuffs and synthetic medicinals, resulting in an accumulation of large stocks of material which are to-day ready for the commercial warfare.

"At the present time these plants are only operating at about 10 per cent of their normal peace-time production, the principal reason being the lack of necessary raw materials. They retain, however, most of their working personnel, who are at present simply employed in keeping the plant clean and orderly. One of the plant directors stated that his firm was spending 1,000,000 marks a week simply to keep the labor employed. This is more or less of a protection measure, taken to keep the men out of labor difficulties and demonstrations, but as soon as they should be allowed to receive the necessary amounts of raw materials they stand ready to resume operations immediately. It would be readily possible to increase their previous large production of dyestuffs by utilizing the quantities of new equipment, machinery and buildings erected for extra war work, as this would entail only slight modifications."

Major Sill said that at the present time the only apparent handicap to the resumption of operations in these plants on a large scale is the lack of oils and greases for lubrication of the machinery.

AMERICAN SUMAC

By F. P. Veitch.
(U. S. Department of Agriculture.)

Sumac grows wild and abundantly on uncultivated lands in North America. At present large amounts of sumac are allowed to remain ungathered each year, while vegetable tanning materials of similar nature are quite extensively imported. This native tanning and dyeing material should be more completely utilized, and also improved in quality to serve as a check on the rising cost of like tanning and dyeing materials, to lessen our dependence on foreign countries, and to give the country people in certain sections an additional source of employment. The important tannin bearing species of sumac indigenous to North America may be readily recognized.

Analyses of a large number of samples gave for the leaves and leaf stems the following average tannin content: Dwarf sumac (*Rhus copallina*), 28.95 per cent; white sumac (*Rhus glabra*), 25.14 per cent, staghorn sumac (*Rhus hirta*), 27.66 per cent. The tannin content of the stalks was found to be 7.77 per cent, 6.84 per cent, and 7.07 per cent, respectively.

An estimate by the Bureau of Chemistry gave a calculated yield from thick uniform stents of 4,864 lb. green weight, or 1,621 lb. cured, of sumac to the acre. In no case should be an able-bodied man be satisfied with less than 200 lb. of cured sumac for his day's work. The total loss in weight of the mixed sumac leaf and stalks from gathering until it reaches the extract maker probably averages very close to 60 per cent. The extracted sumac has some value as a fertilizer for use on land deficient in organic matter.

Properly gathered and cured domestic sumac leaves contain practically as much tannin as the imported Sicilian sumac, and will yield an extract much better in color and quality than that obtained from the domestic sumac as generally prepared at present for market. An appeal is made for more co-operation between gatherers, dealers and extract makers.

ITALIANS NEED AMERICAN EQUIPMENT TO PRODUCE DYES

By Consul Joseph Emerson Haven.

Practically all aniline dyes imported into Italy prior to the war originated in Germany, and there was always a large demand in the Italian market for same on account of the excellent qualities and low prices.

At the outbreak of hostilities large stocks of aniline colors were on deposit with the various Italian firms, but these stocks were immediately purchased at prohibitive prices by the principal factories, thus leaving the market completely without dyestuffs.

Several manufacturers attempted to furnished by Germany; but after a produce aniline colors similar to those series of experiments and financial losses, a poor red and reddish black, not at all "fast," were obtained, which buyers reluctantly were forced to accept.

Local dealers and importers of aniline colors have experienced much difficulty in inducing customers to accept unknown qualities of dyestuffs of foreign manufacture, after their having used the fast and reliable German products and the unsatisfactory dyes of national manufacture.

The managers of several new plants for the manufacture of aniline colors have declared that their nonability of producing solid guaranteed colors was due to the lack of proper machinery, which had not been imported because of the previous high rates of exchange and difficulties in ocean transit.

A market for American-made aniline dyes can only be established in Italy after personal investigation and demonstration of the products offered in order that the consumer be convinced that the American product is equal to that of German origin, as at present there is a strong prejudice in favor of German dyes.

The opinion has been expressed in this district (which is one of the most important manufacturing centers) that were an American concern to establish a branch factory in Italy the product could be easily sold and at good prices.

There is also a good market for machinery, which should be investigated.

The system of selling goods in deposit and quoting prices in lire is much in favor with the Italian firms, and it would be well for American concerns to consider this established custom in endeavoring to develop a trade with Italy in aniline dyes.

GOVERNMENT CHEMISTS HAVE NEW PROCESS FOR SULPHONIC ACIDS

The Department of Agriculture announces that the Color Laboratory of the Bureau of Chemistry has developed, on a laboratory scale, a new process for the manufacture of certain sulphonic acids. This process, as carried out in the laboratories, appears so promising that it is thought that some manufacturers of chemicals and dyestuffs in this country may be able by means of it to supply their demands for these and other valuable compounds, provided the process can be reproduced upon a technical scale so as to obtain results commensurate with the laboratory investigations. The process refers particularly to the sulphonation in the vapor phase of benzene, naphthalene and other hydrocarbons.

With a view to helping the chemical industry of this country, the Department of Agriculture hereby announces that it is ready to assist manufacturers who wish to produce these compounds. The expenses of the technical installation and of the labor and materials necessary will of necessity be borne by the firm, individual or corporation wishing to manufacture the products. The chemists of the Color Laboratory will assist with expert advice, etc. The Department reserves the right to publish all the data obtained from the technical experiments.

This offer of assistance will not be held open by the Department for an indefinite period.

BARRETT COMPANY RECEIVES POSTAL 42 YEARS ON WAY

A postcard mailed in Buffalo forty-two years and six months ago has been delivered at its destination, the New York offices of the Barrett Chemical Company, 17 Battery Place. This time, says the New York *Sun*, Mr. Burleson is rather to be complimented than blamed, for seventeen Postmasters-General have come and gone since the card was started on its way, and not one of them was able to end its travels successfully until Mr. Burleson, the well-known expeditor, took a hand.

It is a card relating to business matters, postmarked Buffalo, November 16, 1877, and addressed to the Warren Chemical and Manufacturing Company, 88 Maiden Lane, New York. The Warren company was long ago absorbed by the Barrett Company. A recent attempt was evidently made to deliver the card in Long Island City, where the Warren company used to have a factory, for it bears a Long Island City postmark dated 1919. Thomas M. Rianhard, vice-president and general manager of the Barrett Company, believes that it has laid for a long time in a letter copying press somewhere, for a blurring of the handwriting, which it in ink, indicates this.

The running time for trains between New York and Buffalo is about eleven hours.

Announcement was recently made by the Botany Worsted Mills that Ferdinand Kuhn has been elected president of the concern with the approval of Alien Property Custodian Francis P. Garvan. Mr. Kuhn has been connected with the company for more than twenty years, and has assumed active management.

LACK OF RAIN HALVES PROSPECTIVE INDIGO CROP

The Indian Department of Statistics has issued its final memorandum on the 1918-19 indigo yield, placing the total area under this crop at 300,700 acres, or 58 per cent below the finally revised acreage for 1917-18, and the total output at 88,300 hundredweight (of 112 pounds), or only half that of last year. Details for the Provinces follow:

	Area		Yield	
	1917-18	1918-19	1917-18	1918-19
Provinces	Acres	Acres	Cwt.	Cwt.
Madras	324,400	149,100	42,900	28,800
Bihar and Orissa	86,700	64,200	10,200	6,300
United Provinces	190,200	50,700	17,400	3,800
Punjab	90,700	19,000	15,500	3,300
Bombay and Sind (including Native States)	11,600	7,600	1,800	1,100
Bengal	7,000	10,100	500	800
Total	710,600	300,700	88,300	44,100

The department states that the season, on the whole, has not been favorable for the indigo crop, owing mainly to deficient rainfall.

The Novelty Cleansing and Dyeing Company has been incorporated with a capital of $10,000 under the laws of Massachusetts to engage in cleansing and dyeing, and also the manufacture of women's and children's clothing. the concern will be located in Boston.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

C. H. S.—Question—Will you kindly inform me just how I may determine to what class a dye belongs?

Answer—Commence your examination by making the following four tests and send me your results, and will send you further tests for its identification.

1. Soluble in water, and not precipitated by alcohol; 2. Soluble in water, but precipitated by alcohol; 3. Insoluble in water, but soluble in alcohol; 4. Insoluble in water and alcohol.

J. McC.—Question—What is the new color, Erie Fast Red FD, which was announced last January by the National Aniline & Chemical Company?

Answer—This color is identically the same from a chemical standpoint, but slightly bluer than the one formerly manufactured at Buffalo, known as Niagara Fast Red FD, and imported before the war as Diamine Fast Red FC, and Oxamine Fast Red F.

Subscriber—Question—Do you know any commercial uses or outlets for the iron oxide sludge obtained in an aniline reducer?

Answer—We are unable to discover any commercial application or market for your by-product, and are of the opinion that none exists at present. Further information regarding this material might be obtained from an analysis, which we should be glad to undertake on payment of a small fee, but we doubt whether the results would justify such a step.

B. C. B.—Question—How can we determine the moisture and ash in samples of Naphthol Yellow?

Answer—For moisture, dry two grams of the finely powdered dye in an air oven (regulated at 125 deg. Cent.) to constant weight. The ash is determined by ignition of the above dry residue, in a Gooch crucible at low redness, followed by cooling and weighing.

To provide for business expansion the New England Hosiery Company, Providence, Rhode Island, has increased its capital from $10,000 to $50,000.

NOTES OF THE TRADE

To manufacture dyes, compounds, chemicals and starches for textile fabrics, the Southeastern Dyestuff Company has been incorporated under the laws of Georgia with a capital of $25,000. Headquarters will be located in Atlanta.

To perform general piece dyeing and the finishing of silks and other textile fabrics, the General Piece Dyeing Company has been incorporated under the laws of New Jersey at Paterson. The capital of the new concern is announced at $125,000.

The Melville Woolen Mill, located at Chambersburg, Pa., now operated by Zabriskie, Gammon & Company, will in future be operated as the Chambersburg Woolen Mills Company.

Plans have been completed by the Knight Woolen Mills, Provo, Utah, for the installation of a finishing department in a new building 40 x 200 feet.

Three hundred looms for the manufacture of sheetings will be installed in additions to be erected to the plant of the Standard Textile Products Company, Mobile, Ala.

The total number of employees in the hosiery dyeing and finishing trade in England was roughly estimated as 4,745 in 1915, but a more recent estimate from a labor source puts the number of workers in this branch of the industry (organized and unorganized) at from 6,000 to 7,000.

The price received for the eight thousand shares of the capital stock of Merck & Company, which were recently sold at auction by Alien Property Custodian Francis P. Garvan, was $3,750,000. The total stock of this company is ten thousand shares. The purchaser was the McKenna Corporation.

F. Kauffman, 501 Broadway, New York City, has been appointed representative in that city of the E. I. du Pont de Nemours Export Company, the incorporation of which, with a capital of $1,000,000, was recently announced.

Plans are being prepared for the immediate rebuilding of those portions of the plant of the Mallinckrodt Chemical Works, Morris Canal and North Stegman Streets, Jersey City, which were recently damaged by fire.

At an estimated cost of $10,000, the Crystal Chemical Company, 867 Westchester Avenue, New York City, will make alterations and improvements to its two two-story brick factory buildings at Willis Avenue and One Hundred and Thirty-fourth Street.

With a capital of $75,000, the Ammann Dye Works has been incorporated under the laws of New Jersey to take over and operate the business formerly conducted by Emil K. Ammann. The office of the concern is in Paterson, that State.

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Optimism Now Justified

An Editorial

Our Duty Toward the Dye Industry

The First of Two Articles by Dr. Bernhard C. Hesse and Joseph H. Choate, Jr.

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MORE ABOUT SWISS DYES

PART II OF "SEEING SWITZERLAND"

A Condensed History of the Development of Azo, Vat and Sulphur Colors by the Society of Chemical Industry in Basle

THE Patent Phosphines GG, G, R and M, yellow, orange and brown basic colors, which have gained great importance, especially in leather dyeing, were discovered in 1894 by the Society of Chemical Industry in Basle. They were produced by treating Acridine Yellow (diamidodimethylacridine) with alkalizing agents, and are readly soluble dyestuffs with properties similar to the so-called phosphines obtained in the manufacture of magenta. Various Acridine colors are known to the trade as Brilliant Phosphine 5G, G and R, and Patent Phosphine GGN and GN. As ammonium compounds they are fast to alkali and are not precapitated in calcareous water.

Azo Colors

In the domain of the azo colors, beginning with such basic azo dyestuffs as Chrysoidine and Bismarck Brown, rapid advances have been made by the Society since the middle of the seventies. The first direct cotton dyestuff was Congo Red, discovered by Boettiger in 1884 and produced by the combination of tetrazotized benzidene with 1:4-naphthylaminsulphonic acid. In the early days of the benzidene colors, chemists were restricted to a comparatively small number of azo-components, and to some few naphthylamine and naphtholsulphonic acids, but this hindrance was soon overcome by the discovery of new naphthalene compounds with which it was possible to produce direct azo dyestuffs in all the colors of the rainbow. In 1888 the first amidonaphthol (2.7-amidonaphthol) was produced in the laboratories of the Society.

A few years later several acids (dioxnaphthoic acids, dioxnaphthosulphonic acids and dioxynaphthalenesulphonic acids) were discovered and put to use for the manufacture of blue and gray direct colors, including Direct Gray, Direct Blues and Indazurine.

In 1888 the Society also showed the way to produce azo dyestuffs which themselves could be further diazotized either in substance or on the fiber, and the world came to know Direct Indigo Blue A and BK.

By the nitration of benzidene the society arrived at Anthracene Red. This proved very valuable for wool dyeing, as it yields bright red shades fast to washing, milling and to light. Cochenille Substitute, a color especially adapted to wool printing, belongs in this category. Another important azo color for wool dyeing was Tartrazin, the first pyrazolon azo color, invented by the Society in 1884. It dyes wool pure yellow shades in an acid bath.

In the year 1892 the researchers of the Society found that the red monoazo dyestuffs derived from alphanaphthol-sulphonic acids and diazonapthalene sulphonic acids by careful treatment with chromic acid, either in substance or on the wool fiber, can be converted into new fast colors dyeing violet or blue-black shades.

Acetyl-H-acid, an important intermediate, was produced by the Society in 1899, and from this was produced Chlorantine Blue, Chlorantine Bordeaux and a number of level dyeing red wool colors (Kiton Red).

The year 1902 is marked in the history of the Society as the "Year of the Rosanthrenes"—the first red dyestuffs which by diazotizing and developing on the fiber did not turn to blue or black but retained their original clear red shade. Among the new diazotizing dyestuffs placed upon the market were Rosanthrene O, R, B and A. From 1906 to 1909 other brands, Rosanthrene AW, GW and BW, which were considerably faster to washing than the earlier products, followed. Rosanthrene Bordeaux, Rosanthrene Pink, Rosanthrene Violet and Rosanthrene Orange were added to the series. The Direct Fast Scarlets G, R, etc., were later derived from the Rosanthrene series, while for the wool dyer, Chrome Fast Cyanine B and Chrome Fast Cyanine G are chrome colors derived from orthodiazo-naphtholsulphonic acids. Brown mordant colors, known as Chrome Fast Brown A, P and T, have been manufactured by the society since 1904. Among the acid wool azo colors which do not require an aftertreatment with chromates are the yellow pyrazolon dyestuffs Pyrazine Yellow, Kiton Yellow, Kiton Fast Yellow, etc., which dye level and yield exceedingly clear shades of excellent fastness to light.

THE SULPHUR COLORS

The first sulphur color, the so-called Cachou de Laval, was made in 1873 by Croissant and Bretoniere by melting various organic substances such as sawdust, bran, etc., with sulphur and caustic soda. For years this product, which dyes unmordanted cotton in grayish-brown shades, was looked upon as a dyestuff curiosity, being at that time the only representative of the sulphur dyes, and it was not until 1893 that R. Vidal succeeded in producing black sulphur dyestuffs (Vidal Black), which led to important research in which the Society played a prominent part. The year 1898 saw the discovery and marketing of Pyrogene Deep Black, which was followed a year later by Pyrogene Direct Blue, green shade and red shade—the first blue sulphur colors. The next discovery was that of the well-known Thiophenol Black T, which has acquired great importance on account of its tinctorial power and its low cost. Yellowish brown sulphur colors were manufactured by the Society in 1900, which were later followed by the production of nitrobenzyl and nitrobenzylidene compounds yielding olive-colored, reddish-brown, yellowish-brown and yellow sulphur dyestuffs. These products of the Society include Pyrogene Brown G, Pyrogene Cutch G and B, Pyrogene Cutch Brown 2G and 2R Extra, Pyrogene Yellow Brown RS, Pyrogene Olive 3G and the first-known yellow sulphur dyestuff, Pyrogene Yellow M.

In the year 1903 the Society discovered an economical and simple method of producing the indophenols used in the manufacture of black, blue and green sulphur dyestuffs. The various brands of Pyrogene Indigo, Pyrogene Blue and Pyrogene Green, which have proved exceptionally valuable to all branches of the cotton-dyeing industry, are all included in this class.

VAT COLORS

The part played by the Society in the development of the all-important vat colors was a vital one. Up to the beginning of the twentieth century only one vat dyestuff, Indigo, was known. This had been employed universally for thousands of years for the production of fast blues, and was obtained principally from India. Although a large number of syntheses were developed and partly worked on a commercial scale, the first one with any prospect of becoming a successful competitor of the natural product was based on the synthesis of Heumann in 1890 (melting phenylglycine with caustic alkali). A process of the Basle Chemical Works, which has been amalgamated with the Society since 1908, was protected by letters patent in that year, but a more recent process, based on the use of sodium anilide as the water-binding agent in the indoxyl melt, has since been evolved. The Society began the manufacture of Synthetic Indigo in 1910, and the necessary chemicals, such as caustic alkali, metallic sodium and chlorine, are produced on a large scale by new processes invented by the society.

The first ten years of the present century are remarkable for the large number of newly discovered vat colors the fastness of which not only equals but considerably surpasses that of Indigo. In 1901 the first vat colors of the anthraquinone series, Indanthrene and Flavanthrene of the Badische Company, were discovered, and in 1905 Thioindigo Red was brought into being by Friedlander.

Of the Swiss manufacturers, the Society was the only firm to enter into research in this field. Primarily the research was limited to vat colors of indigo character containing sulphur. In the latter part of 1905 it perfected a new and simple process of manufacturing Thioindigo Red whereby the pure dyestuff is obtained in one operation in a crystalline state. This was Ciba Pink B. Shortly afterward came the production of the so-called Vat Blue, which is of little tinctorial value but which is a valuable product for the manufacture of other vat colors. By the introduction of bromine into the molecule of Vat Blue this color was converted into dyestuffs which dye cotton in blue shades, turning to fast gray, bluish violet and reddish violet. These are known respectively as Ciba Gray G and Ciba Violet B and 3B, and are developed in a boiling soap solution. Similarly the bromination of Thioindigoscarlet R, of little importance in itself, gave Ciba Red G, of excellent fastness, while brominated Thioindigo Red yields Ciba Bordeaux B and Ciba Red B.

Ciba Scarlet G, a red vat color which dyes both cotton and wool in exceptionally bright and clear scarlet shades, was produced in 1907 by the Basle Chemical Works, and was the first representative of a new group of vat colors, Ciba Red R being a bromide derivative thereof and Ciba Orange a close relative.

The results obtained by the halogenation of dyestuffs of the thioindigo series led to an analogous treatment of Indigo. In 1907 the Society found that by a very smooth reaction three and four atoms of bromine could be introduced into the Indigo molecule, with the result that new dyestuffs were obtained which possessed considerably higher affinity for the vegetable fiber and better fastness to washing than Indigo. Ciba Blue B and 2B are examples, while Ciba Brown R is a brown vat dyestuff obtained by brominating p-p-diamido-indigo, itself a valueless product for tinctorial purposes.

(Continued on page 12.)

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A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

OPTIMISM NOW JUSTIFIED

There is no doubt that events favorable to the American dyestuff industry have been occurring with remarkable frequency during recent weeks. Foremost among these was the recent action of the War Trade Board, a full account of which was given in our issue of May 19, at which effective machinery for the licensing of dyestuff importations was created. Following this we have news that Representative Longworth of Ohio has introduced in Congress a bill for the protection of the dyestuff and chemical industries, which was at once referred to the Ways and Means Committee and which, reports lead us to believe, will be reported out favorably in the very near future. This measure imposes duties of from 35 to 50 per cent ad valorem on different classes of dyestuffs and special taxes of from 6 to 10 cents a pound specific. We have reports also from the textile and other dye-consuming industries that business is increasing in no uncertain manner.

All of these facts taken together can mean but one thing—the immediate future of the American dyestuff industry is assured. It remains only for the industry as a whole to register in no uncertain manner its approval of the protective measures taken to induce Congress to make permanent the measures which have already been adopted.

The far-reaching effect of these developments upon the mental state of the dye-consuming interests is not to be underestimated. Whereas consumers a few months ago were hesitating to place orders, believing, as many of them did, that in the very near future quantities of German products would be dumped in this market, they can now be satisfied beyond a reasonable doubt that no competitive German products will be permitted to enter this country. It is true that the committee created by the War Trade Board will, undoubtedly, permit the importation of certain colors essential to our manufacturing industries which have not as yet been successfully produced here, but it is equally certain that these goods will be allowed entry only where actual need of them can be shown and where it is not possible to duplicate them from American sources. In other words, the consumer need no longer hesitate to buy products of American origin through the fear that some of his competitors may obtain cheaper or superior dyes of a similar character from Germany. On the other hand, American manufacturers of dyestuffs can proceed with confidence in the development of the vat colors and other greatly needed dyestuffs, because of the assurance that once these colors are satisfactorily developed in commercial quantities they will be protected, through the committee of the War Trade Board, from German competition on these colors.

All in all, things never looked brighter for the dyestuff industry. Personally, the REPORTER was never in doubt that events would shape themselves as they have, but it is, nevertheless, a keen source of satisfaction to feel that we can rest secure in the outlook for the immediate future.

We should not, however, permit ourselves to become overconfident and rest at ease on what has been accomplished. It must be remembered that the life of the War Trade Board is not eternal and that its functions must be superseded by some body to be created by the new Congress. Until such legislation has been finally enacted the industry as a whole

must not relax its efforts to keep plainly before Congress the necessity for such action.

MORE ABOUT SWISS DYES

(*Continued from page* 8.)

Another valueless coloring matter, Induribin, was halogenated and Ciba Heliotrope, which is, both dyed and printed, superior to the old purple Alizarine, was obtained thereby.

The first green vat dyestuff, Ciba Green G, was produced by the Society in 1907. It dyes cotton in good, yellowish-green shades which are fast to chlorine and to washing.

By heating Indigo and benzoyl chloride in the presence of copper a condensation product was obtained by the Society in 1910 possessing the typical properties of a vat dyestuff and dyeing both wool and cotton in the claret-colored vat to pure greenish-yellow shades. This product, the exact chemical constitution of which has not been ascertained, is deeply yellow-colored, well crystallized and is called Indigo Yellow 3G Ciba, and is used for wool dyeing either alone or for greens in combination with Ciba Blue 2B. Modifications of the process for producing this Indigo derivative yield Ciba Yellow G and Ciba Yellow 5R. Another class of Indigo derivatives developed later on cannot be vatted with alkaline reducing agents but are valuable as lakes. They include Lake Red Ciba.

In the cotton-dyeing anthraquinone vat colors Cibanone Yellow R and 2R and Cibanone Orange R were produced in 1907. Others were Cibanone Brown B and V, fast brown dyestuffs, and Cibanone Blue 3G. The first black vat dyestuffs, including Cibanone Black, were produced in 1911, and to this series belongs Cibanone Green, produced by treating Cibanone Blue 3G with oxidizing agents, and Cibanone Olive (1912), obtained by the nitration of Cibanone Green.

III

This concludes an outline of some of the principal colors produced by the Society of Chemical Industry in Basle, the list not being by any means a full inventory of the products of its manufacture. While the foregoing condensed history is not a comprehensive history of the dyestuff industry in Switzerland, it nevertheless enables one to trace the development of the industry in that country very accurately through the activities of a company which has been its acknowledged leader. Moreover, it enables the American dyestuff consumer to realize more vividly just what part Switzerland has played in the dye markets of the world and to understand the importance of its role.

As long as the Great War is remembered it must also be remembered that the dye makers of Switzerland have been gallant, active and relentless challengers of the supremacy of the German dye monopolists. Despite their differences in languages, religions and even customs, the people of the Country of Cantons have been first, last and always Swiss to the core, and never by any chance German, French or Italian. Despite efforts beyond all counting to subdue and separate them, they have remained steadfastly true to their traditions and their belief in a sturdy, whole-hearted independence which has won them the respect of all nations.

In short, when one says of a man "He is a Swiss" he may immediately be identified as one of a race which numbers among its ranks a high percentage of expert technologists, careful workmen and inherent possessors of that vision which we term "broad-gauged." This is evidenced by the quality of the products sent out from Switzerland; and, indeed, the famous catch-phrase "High as the Alps in Quality" might well be applied to many more of the Swiss goods than the single one which at present enjoys its benefits. The Swiss know well how to look after themselves and their dependents, pauperism being practically unknown in their country, and hence are ideal citizens of any community. And for their plucky stand against the German dye barons they deserve the gratitude and applause of the entire world.

OUR DUTY TOWARD THE DYE INDUSTRY

What are without doubt two of the most clearly expressed and, from the standpoint of timeliness, most up-to-the-minute articles in their interpretation of present hopes for the American dyestuffs industry are the following, prepared by Dr. Hesse and Mr. Choate for a recent symposium conducted by the *Manufacturers' Record*. To our way of thinking, they constitute a perfect cross-sectional slice of the existing situation, embodying each essential element in its correct proportion and presenting a straightforward, common-sense view of the whole. We herewith reproduce the first of these two articles.

Conditions for a Permanent American Dye Industry

By Dr. Bernhard C. Hesse

The indispensable condition for a permanent American dye industry is that the American public shall at no time nor in any way get "cold feet" on its frequently and emphatically expressed determination to have that industry complete, self-contained and self-perpetuating, and that without awaiting the consent of any other nation.

American dye makers are of themselves fully determined to have that sort of an industry, because they know better than anybody can tell them that anything less than that is wholly and absolutely useless. The only thing in this world that can defeat such an industry is the American public itself. If the American public is ever stampeded, for any reason whatever, into deserting the American dye industry, then it will surely be "good-by, American dye industry." England, France, Germany, Japan and Switzerland are each and all actually and now prepared to stand back of their dye industries to the absolute limit, and some are ready to cut off competition from any source and in any manner at any time. Under those new conditions, what possible chance can the American dye industry have if it be ultimately discriminated against abroad and deserted at home? Notice, not to be complacently ignored, has been served on us that "tomorrow there will be no pity in the economic battle. All have suffered too much to be generous."

Of course, some will surely object that this course will breed "dye barons." Well, what of it? Are we, as a people, so spineless and so utterly lacking in ingenuity that we dare not or cannot take care of Mr. Dye Baron without killing our dye industry? And, take it at its worst, suppose we do have a few dye barons of our own, would we rather have no dye barons and no dye industry or a dye industry with a few dye barons thrown in? To my mind, we can very satisfactorily handle any dye barons that may crop up when we are really on our feet as dye makers. We have simply got to stand by our own in dead earnest, because it is absolutely certain that no one else will. In this industry each nation's hand is now against every other's.

American dye makers know that in order to justify the support and to meet the proper expectations of the American public they must make and deliver just as good and just as varied dyes as cheaply as anyone else can furnish them to the American public, on fair and equitable terms; further, that they must lead or at least be abreast of the leaders anywhere in point of service and in point of newly discovered and developed specialties. They know that thoroughly and absolutely.

The American public must never again be bamboozled into the belief that coal-tar dyes are "raw materials," and then, under the spell of the shibboleth "raw materials must be free," be hypnotized into putting coal-tar dyes on what amounts to the "free list," as was done by free-trader and high-protectionist Southerner and Northerner, Democrat and Republican, alike from 1883 down to 1913. That trick was most beautifully turned six times in succession by dye users, and without a hitch. In 1916 it had a good-sized crimp put into it, but the effects of the old hypnotists were not even then fully worn off, and there are plenty of signs even now that the old hypnotists are again trying to get in their fine work. The American public has at last learned, and thoroughly, that coal-tar dyes are not by any means "raw materials," but that they are, in fact, manufactured articles of very high degree. In future the American public must insist that dye makers be heard and that their judgment be weighed and considered in all legislation aimed at setting their industry on its feet, and that those who have heretofore had all the real say in such matters—that is, dye users—shall be effectively relegated to conspicuous silence and noninterference should they ever again attempt to thwart American dye makers in any way whatsoever.

All salespeople who handle dyed goods at retail or at wholesale, and those who coach them, must break away from their old, old habit of blaming almost every defect in an article complained of on the dyestuff in it; if the goods are tender, "the dye is to blame"; if they crock, "the dye is to blame"; if they fade, the "dye is to blame." In that way they deliberately push the blame onto the dye maker. Chances are that the dye is in nowise to blame. The person who put the dye on the goods or who cut up the goods is almost surely the particular "nigger in the woodpile," and the dye maker is probably in noway involved. The dye maker is responsible only that the dye he delivers is the dye ordered. After that he has no control. The dye maker cannot prevent the dye user from employing a dye recommended by the maker for nothing but cotton on a mixture of cotton and wool, or upon linen, or upon wool, or upon silk or mixed-silk fabrics. Nor can the dye maker stand over the dye user all the time and see to it that the dye user applies the dye properly. Of course, the goods may crock or be tender or fade or run if the dye be not properly put on. Again, a fabric properly prepared for exposure to light only and not at all intended to withstand washing or water may be cut up into wash goods. Of course, the dye runs! How can it do otherwise? A properly made fabric has been put to an utterly improper use! So why blame the dye maker out of hand? The changes can be rung on this theme almost without limit, and neither the dye nor the dye maker be properly involved. For that reason, blame for complaints should not be airily charged up to the dye, and particularly the "American" dye, for it is seldom, if ever, properly to be blamed. The dye maker should not be so recklessly loaded down with all the blame for the faults of others; he has troubles enough of his own; make dye users do a little explaining on their own account.

The old fairy tale that because dyes are of American make they are inferior needs to be thoroughly forgotten. Nothing more ridiculous or unfounded was ever offered to the American public.

In short, if the American public will intelligently stand by the domestic dye maker and will at all times fairly judge his goods on their merits, the American dye maker will ultimately provide the American public with a domestic dye industry of great magnitude, strength and resourcefulness; otherwise there will be no permanent American dye industry of consequence.

It is the American public, and it alone, that will make or break the American dye industry.

(Note: Mr. Choate's article on Protecting the American Dye Industry will be printed next week.)

COTTON BLUE B

A new dye recently announced by the National Aniline & Chemical Company, Inc., Cotton Blue B, is an Acid Blue that will especially interest the silk dyer, the paper manufacturer and the ink maker. It will also take the place of a blue for laundry purposes, formerly used.

Cotton Blue B can be employed for the bright blue shades required on cotton yarn, where the question of fastness to washing does not enter into first consideration. Other uses for cotton are restricted to twine and fabric of this character.

As a special dye for paper, it lends itself very well for use in the bluing of bond paper and other high-grade papers, for which ordinary types of Basic Blues do not have sufficient brightness.

To manufacture chemicals the Heyl Laboratories, Inc., have been incorporated under the laws of Illinois with a capital of $10,000.

TESTING FOR WEIGHTED SILK

The adulteration of silks, which causes so much unrest to-day, is called "weighting," or "loading," silk. Weightings for silks generally are made of three different sorts: Vegetable (sugar and tannic acid), metallic (tin and iron, the latter for black silk only), and mixed (tannic acid, tin, or, for black, iron-tannic acid). Sugar weighting is most noticeable when the silk becomes spotted with water easily and the sugar can be easily tasted. Weighting with tin or iron causes the most trouble.

Testing for weighted silk, while the chemist would possibly resort to hydrochloric acid, dissolving the tin mixture, leaving the thin web of silk, can be done by a simpler process by the layman: Hold a small piece of silk over a burning match, and if sample is pure silk it will burn like pure wool or the combings of hair, the ashes crumbling easily; but if the ashes remain rigid and can be sprung to and fro, like a spring, it shows the presence of tin or iron left after the silk is burned out.—*National Cleaner and Dyer.*

SULPHUR GREEN T

The National Aniline & Chemical Company, Inc., announces the production of a new dye known as Sulphur Green T and said to be the brightest Sulphur Green now available. It has been subjected to exhaustive tests and found to present excellent fastness to light. It is fast to cross dyeing and to stoving, which qualities will make it of especial interest to the woolen industry.

The new dye is a medium green, brighter in quality than the older type, Sulphur Green SAP. It resembles somewhat a pre-war color known as Immedial Green GG.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

S. T. Co.—Question—Can you give me a description of methods employed to strip colors from wool by the nitric acid process; also with bichromate of soda and sulphuric acid? Please state amounts to use and time required to obtain results. The stock should be yellow when finished, such as is used by the blanket mills.

Answer—Stripping with nitric acid is accomplished by heating the wool gradually from 140 deg. to a boil in a bath containing from 2 to 5 per cent of concentrated nitric acid, according to the depth of color to be removed. After about a half-hour it is washed thoroughly. This process of stripping is not to be commended, as the fibers suffer greatly, although it is still used by silk dyers. Chrome stripping is done with 3 per cent of sodium bichromate and 5 per cent of sulphuric acid at a full boil. As the boiling proceeds the wool itself is attacked and the color becomes darker; therefore it is well to stop as soon as the original color has been stripped. If dyeing is to be done on top it is advisable to reduce the free chromic acid to the green chromium salt by the use of lactic or formic acids. The yellow color produced by chrome stripping will soon turn dark and finally green when exposed to light, but the yellow from the nitric acid process is more permanent.

K. L. R.—Question—In changing over from Direct Black to Sulphur Black on raw stock we have had some trouble from dryer fires that appear to be due to the Sulphur Black. Can you give us any general information on this subject? We think that it is more a matter of general conditions than any specific dye, and we should like to know what conditions tend toward this effect and what precautions to observe to avoid trouble.

Answer—A great deal of the Sulphur Black now on the market contains a high percentage of free sulphur, which is always likely to cause spontaneous combustion. It is well to test your dyestuff for free sulphur and to purchase only such as shows a minimum. We believe that the Sulphogene Blacks of Du Pont are about as free from this fault as any colors on the market. In addition to using care in the selection of dyestuffs, you should be careful to wash the stock thoroughly after dyeing in order to eliminate any free sulphur which may be present. After this precaution is taken, only the usual care in not overheating the dryer should be necessary to avoid trouble. On another page of this issue will be found a note on a new series of sulphur blacks which, it is claimed, will not heat spontaneously on drying.

NOTES OF THE TRADE

Building operations were begun at once to replace the offices and warehouse of the Hellenic Chemical & Color Company, 1 Cedar Street, New York City, which were completely destroyed by fire last week. A short circuit in the basement of the building was responsible for the conflagration. In the meantime, according to an announcement sent out to the trade, temporary offices for the company have been established at 240 Broadway, with the telephone number, Barclay 7459.

Frederick Mason, for many years connected with the Kalle Color & Chemical Company in the Providence office of that concern, and who was more recently associated with Edward C. Foster, of Providence, has now become associated with the Newport Chemical Works, Inc., and will in future be in charge of the company's Providence district.

A branch office has been opened in Akron, Ohio, by the National Aniline & Chemical Company. The Akron branch, which is housed in the Peoples' Savings & Trust Building, has been opened in order to give better service to the Mid-western trade, and especially the rubber industry. Sales work for the Intermediates Department is in charge of H. H. Replogle, who has been identified with the rubber industry for many years.

Dr. Carleton Ellis, president of the New Jersey Testing Laboratories, describes in U. S. Patent 1,278,307, a series of direct dyeing sulphur blacks which are produced by heating "nitrated aromatic material" comprising a phenol, with a reagent comprising aqueous alkaline sulphide material, until complete reduction of all nitro groups is effected. This produces a product not spontaneously heating on drying.

H. G. Bettler, Inc., chemical compounds of all kinds, has been formed in Delaware with a capitalization of $100,000. Incorporators, Harry G. Bettler, Benjamin F. Prorandie, Chicago; A. Millertelful, Minnetka, Ill.

Kenneth Mackenzie, Ltd., has been incorporated with a capital of approximately $25,000 in Stornoway, Scotland, to carry on the business of weavers, dyers, bleachers and finishers of woolen and worsted goods.

To take over the business of William H. Whiting & Company, the Whiting Wool Company has been incorporated under the laws of Pennsylvania with a capital of $75,000. The concern will handle pulled and scoured wools, and offices will be in Philadelphia.

The officers and directors of the Chemical Foundation, Inc., consist of: President, Alien Property Custodian Francis P. Garvan; vice-president, Col. Douglas I. McKay, late Colonel, General Staff, vice-president of J. G. White & Company, and Deputy and Police Commissioner of the City of New York under Mayors Gaynor, Kline and Mitchel; treasurer and secretary, George J. Corbett, assistant secretary of the Central Union Trust Company.

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Unmasking Mistakes

Being an Attempt at the Eradication of Errors in the Daily Press of Milwaukee and Denver.

An Open Price Industry

An Editorial

Protecting the American Dye Industry from Destruction by the Hun

By Joseph H. Choate, Jr.

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UNMASKING MISTAKES

In Which Misleading Milwaukee Mutterings and Deceptive Denver Declarations Are Laundered, Renovated and Ironed Smooth for the Use of the Trade

ALL of us make mistakes. It has been jokingly observed that a bank cashier lives comfortably (behind bars or otherwise) for the rest of his life on his mistakes, and that a doctor buries his. Even an editor can make mistakes. In that event his mistakes are duly printed and he gains the reward of additional publicity from those who vehemently cry him down and those who claim that he is a good and wise man and an ornament to his community. There are many who hold that Nature makes a mistake every time she creates an editor—but, then, editors are not created; they degenerate into editorship through a form of mental astigmatism which unfits them for honest toil of any sort. At least, this is the popular idea, and . . . far be it from us to publicly fly in the face of anything popular.

However, as to mistakes there are several varieties. There is the inspired variety which led Christopher Columbus to think he could sail clear around the world and reach India. He was mistaken when he thought there was no continent in between, and he mistook Central America for the country he sought—but gosh! no one is going to hold *that* up against him. Then, there is the deliberate mistake, like that of one Dr. Cook, who "mistook" certain arctic observations to mean that he had reached the apex of this terrestrial globule—and promptly cashed in to the tune of one hundred thousand dollars —maybe one hundred and one thousand; we never counted 'em. And then again, there are just mistakes—the kind that you, we and everybody make—little errors of judgment which we are ashamed of when they are brought to light, or point out with pride as evidences of ultra-acumen when they lead to the proper subsequent actions.

Mistakes of the latter variety are based on two principal causes: (1) Misinformation and (2) misinterpretation of information. Misinterpretation of misinformation constitutes one of the few cases where two wrongs sometimes make a right; but this is beside the point. Misinterpretation of any kind of information is due mainly to (a) false reasoning or (b) insufficient knowledge of specific and general conditions affecting the subject about which the mistake is made. This is all a rather smooth and oily manner of saying that to avoid mistakes one must get *all* the facts and then make extensive use of the head.

If "to err is human"—and leading authorities are agreed that it is—it is likewise equally human to wish to point out error whenever possible. The warm glow of satisfaction experienced by the critic who deftly jabs a sharp-pointed lampoon (first cousin to the harpoon in more ways than one) into the midriff of a large, corpulent mistake, and then watches the blood spurt, occupies a position all its own in the gamut of human emotions. And when such a pleasure is by way of being directly in the line o' duty, so to speak—ah, then! —what more could one ask?

At any rate, the REPORTER desires to take its pointer in hand for the purpose of pointing out what to us appear to be two rather glaring mistakes perpetrated by the editors of the Milwaukee *Journal* and the Denver *Times* respectively. Step up close to the blackboard, please, and read the following somewhat lengthy quotation from the former newspaper. It is the sort of thing we had in mind when he sounded the clarion call in these pages against critics of the proposed scheme for protecting the dye industry going off at half-cock:

"Representative Nicholas Longworth has introduced a bill to protect the new United States dye industry.

"He explains that $300,000,000 has been invested in the industry, 'which is now competent to supply all the needs of the American market.'

"Germany and other countries, he says, have manufactured or are manufacturing enormous quantities of dyes which will at once be dumped upon the American market, to its utter ruin.

"So far so good. But in what Mr. Longworth says, it appears that his bill differs from the recommendations of the Tariff Commission, which, he says, 'has given very exhaustive investigation to the working of the present law.'

"Mr. Longworth's bill doubles the rates considered sufficient by the Tariff Commission and strikes out the provision of the present law that the duties shall be reduced yearly by 20 per cent for five years.

"Mr. Longworth admits that the dye industry is not altogether a helpless infant, for he says that it 'is now competent to supply all the needs of the American market.' And yet he would double the rates which the Tariff Commission considers will place the dye makers on a fair competitive basis and shuts off the possibility of reduction of the duties when they are no longer necessary.

"In other words, the industry, under the pretense of fostering it, is to be given an extra amount of protection over and above its actual needs, and such protection, to all intents and purposes, is to be made permanent policy.

"Tariff rates for infant industries have always been argued for as temporary expedients, but they have a way of becoming permanent. Our past tariff history gives ample reasons for saying 'once an infant, always an infant.'"

Here is a clear case of misinterpretation of information due to insufficient knowledge of specific and general conditions affecting the subject about which the mistake is made. This lack of full knowledge is perfectly understandable and forgivable; it is entirely natural under the circumstances, for the doings of the dye industry have not received nearly so much publicity of late as they did during the hectic months of 1915-16. But nevertheless the view is a mistaken one, and the fact that it originated in far-away Wisconsin, in the mind of a gentleman who could not possibly be expected to carry in his head all the details of the progress of all the industries, makes it none the less imperative that it be corrected. For such are the seeds of dissension and ultimate wranglings—which is what we desire most ardently to avoid just now.

"Mr. Longworth's bill doubles the rates considered sufficient by the Tariff Commission," says the Milwaukean; and further on, "he would double the rates which the Tariff Commission considers will place the dye makers on a fair competitive basis." But *does* the Tariff Commission consider its forty-five amendments sufficient to do all these things? Not at all. Representatives of the Commission have repeatedly pointed out that they do not consider the proposed amendments sufficient to protect the industry, but that they represent, instead, the most radical changes which could be made *with any hope of passing Congress under present political conditions.* That the proposed rates should have been doubled before their presentation to Congress means simply additional political daring and not any revision of the original opinion of the Commission, which from the start indicated its belief that much higher rates were necessary before the tariff on dyes could give the Germans any cause for alarm. Said Dr. F. W. Taussig, chairman of the Commission, speaking before a dinner of dyestuff manufacturers at Sherry's, New York, last December: "It seems clear that any proposal of an extreme character would arouse opposition and stir controversy. A radically new policy of any sort has little chance of being carried into effect." Dr. Grinnell Jones, expert adviser of the Commission, pointed out, when the amendments were first submitted for public inspection, that the Commission was not trying to foist the measure upon us as a specific for all the ills the industry may be heir to, but merely as an improvement over Title V of the Tariff Act of September 8, 1916, which, in case no further legislation of a protective nature should happen to be passed, would at least do some good through stopping up a number of holes which had become apparent in that Act. And William S. Culbertson, another member of the Commission, has declared more recently that "the Tariff Commission has published a report suggesting amendments to the Dyestuffs Tariff Act of 1916 which will make more effective the presumable intent of Congress," and that "it was not the purpose of the Tariff Commission in this report to advise whether or not the rates of duty in that law are adequate for the protection of the American dye industry." He concluded: "This is still an open question and involves a matter of policy which Congress will, no doubt, be called upon to consider."

This would appear to be sufficient to straighten out the Milwaukee editor's view on this point. As for the rest of the editorial, anyone who will trouble to re-read the words of Dr. Bernhard C. Hesse, printed in last week's issue of the REPORTER, as to the ultimate fate of such "dye barons" as may come into being through too much protection, will find enough to calm all fears. Our Western friend has merely failed to take into account the "key" or pivotal nature of the industry, and its consequent relative importance (which is out of all proportion to its size), and hence to see the need, as expressed by Dr. Taussig, that it "be rescued from political strife" and that it "be considered upon its merits, without regard to political complications, and disposed of as an urgent matter needing immediate attention."

So much for Milwaukee. In the Den-

(*Concluded on page* 12.)

AMERICAN DYESTUFF REPORTER
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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

AN OPEN-PRICE INDUSTRY

We all know that one of the reasons for the Great Drouth of sales which afflicted the dyestuff industry (now most happily disappearing) was, among other things, the widespread belief among consumers that dye prices were soon to miss their footing at the top of the toboggan and come hurtling downward to pre-war levels at a speed which would make the boards smoke. In some mysterious manner (ha, ha!) a few choice words of the real Inside Stuff (ha, ha!) had carelessly leaked out from the offices (ha, ha!) of the big dye manufacturers, and all that remained (ha, ha!) was to sit tight and watch the grand financial chute-the-chutes which were due to start any minute (ha, ha, ha!). It was all really too funny for words, and so no wonder there were sly nudges and suppressed merriment as necks were craned to look aloft at the Day's Quotations.

However, the laughter has died down and the foregoing is to-day practically ancient history. For the past few weeks the real truth of the matter has become plainly apparent, namely: that there will be no radical decline in dye prices, any more than there will be a radical decline in the prices for woolens or cottons or silks—or the fabrics manufactured from these substances—or even in rentals and foodstuffs and all the things which we consider the bare necessities of life. It would be very pleasant, indeed, to look forward to such a general *diminuendo* in the scale of living, but economic conditions in this country to-day have ruled otherwise. It would be pleasant; but authorities have come to the conclusion that there will be no general reduction for many, many months to come — if then. Whether or not it ever will come at all is something for the financial experts to wrangle over. The fact to seize upon and digest is that we have entered a period, probably of lengthy duration, wherein the prices of things will remain at approximately their present levels.

Allowing this, the thing to do is to get it understood as rapidly and as widely as possible. As has been pointed out in these columns before, prices may go up, down or around and, provided there is general foreknowledge of their antics, business will not be measurably retarded. But when there is uncertainty, all elements of all the industries, naturally enough, scuttle to cover and limit their operations to bare necessity until the future is ascertained and confidence returns. Business confidence is only another name for definite knowledge; the two terms are practically interchangeable.

All of which is designed merely to introduce (to those of our readers who have not already heard of it) the new movement of producers generally for published, open-price methods as a means by which to crank up the business engine and set in motion the great flood of buying and selling which makes for prosperity—and which will most certainly get under way as soon as people know where they stand in the matter of prices. A number of prominent concerns, together with students of economic conditions and financiers, have agreed that there is at present an enormous potential demand, and that this demand may be brought into action as soon as the values of things people buy are definitely established.

Two of the best examples of how the open-price plan works are (1) the retail dry goods business of the country, whose prices are known to every individual through their publication in advertisements and through tags on the goods in the stores, and (2) the automobile industry, which once every season names its price to the public for that season, so that every individual, possible customer or not, is made familiar with the value of that article.

With the plan for the universal extension of this scheme the REPORTER is in sympathy, for it is notable that these two industries are perhaps the only two large industries in the country whose business has been uninterruptedly active since the signing of the armistice.

In this connection we should like our readers to peruse the words of Vice-President Thomas R. Marshall, in *Leslie's*, wherein he remarked:

"Prices are not coming down in America. The manufacturer who is halting upon the theory that the bottom is going to drop out of raw material will find the bottom out of his business before it is out of raw material. The retail merchant who is waiting until he can purchase cheaper goods will have his store closed by the sheriff and no way to get the cheaper goods upon his shelves.

"The man who has denied himself and stinted himself during the period of the war and is now husbanding his resources upon the theory that prices are going to take a tumble may succeed in washing his shirt to shreds before he can buy a much cheaper one."

Likewise, please hear Prof. Irving Fisher, of Yale University, in *Collier's:*

"Prices will never return to the old pre-war levels. Business men who are holding back, waiting for the old prices, are chasing a rainbow. Business men should face the facts. To talk reverently of 1913-14 prices is to speak a dead language to-day. The buyers of the country, since the armistice, have made an unexampled attack upon prices through their waiting attitude, and yet price recessions have been insignificant. The reason is that we are on a new high price level, which will be found a stubborn reality. Business men are going to find out that the clever man is not the man who waits, but the one who finds out the new price facts, and acts accordingly."

The application of all this to the dye industry may be questioned by some, but the fact is that common Yankee horse sense tells us there is no more reason why it cannot hold good in the dye and chemical industries than in any others. This would not have been true two weeks ago, but the action of the War Trade Board and members of the Chemical Foundation and the industry at large have rendered it perfectly feasible. The industry is now relieved of its uncertainty, and hence it is in a position to relieve its consumers of theirs in the matter of prices. Prices will not come down. Nor is there anything on the horizon which might send them unexpectedly up. And there you are.

It has never been the custom, of course, to pursue such a policy, although the Germans maintained fairly rigid levels. But competition was keen, and since the inauguration of the industry in this country prices have fluctuated like wind-blown leaves. Now they may be standardized; and while certain modifications of the scheme may be necessary for the dye industry, and many elements of the business may regard it merely as the lesser of two evils, it would seem to be a good policy to pursue under present conditions.

ERIE VIOLET 3R

The laboratories of the National Aniline & Chemical Company, Inc., announce a new violet for immediate delivery to the trade, known as Erie Violet 3R. This color has been the subject of prolonged study and tests, and is believed to be the brightest and fastest violet now available for the American market. It is of good fastness to light, and fairly fast to washing. It is reasonably fast to acids and alkalies. It has excellent fastness to hot pressing and to heat in general.

The new dye is easily dischargeable, which will make it excellent for printers, for silk effects and for delicate work of this character. It will supply the need of the general dyer for a good fast shade of Violet or Heliotrope adapted to work on cotton, cotton and silk, and other mixtures. Its nearest earlier prototype was Diamine Violet N.

UNMASKING MISTAKES

(Concluded from page 7.)

ver *Times* we find the editor, under the heading "Keep Out the German Dyes," giving vent to the following:

"The War Trade Board has decided to allow the importation of German dyes and has appointed a committee to find out just what quantity of dyes will be needed in this country.

"The decision of the Board opens up a great danger. It gives German trade an entering wedge, a chance to re-establish itself against the substitute industries which have been carefully nourished in this country for five years. President Wilson in his message points out the necessity of protecting American chemistry.

"If the German dyes again take precedence in the field, as the are liable to do, the effect will be a setback to American inventive genius and industry. For five years now America has gotten along with a rapidly decreasing quantity of German dyes, which have been practically extinct in this country for some time past. In spite of that, clothes and other articles continue to be colored, and chemists claim that the American dyes are superior to all others. In Colorado there are vast possibilities of development in the lignite fields which can supply the world with coal tar.

"To supply the colors formerly imported from Germany, coal-tar products concerns have been extensively exploited in this country. To be forced back into the old position of dependence on Germany for color will be deplorable."

Dismissing everything following the second sentence of the second paragraph as being merely corollaries of what went before, we find the manifest flutter of alarm to be based entirely upon the erroneous conclusion that "the decision of the Board opens up a great danger" and that "it gives German trade an entering wedge, a chance to re-establish itself against the substitute industries which have been carefully nourished in this country for five years."

We are in hearty sympathy with the Colorado editor's desire to attack anything which even remotely resembles a chance for the Germans to make ducks and drakes of our dye industry; the tone of the article is decidedly friendly to the industry and displays a jealous care for its best interests which might well be emulated by the Milwaukee writer. However, it is simply another case of insufficient information; the alarm is unnecessary, for, as is well known, distribution of these German dyes can take place only through the Chemical Foundation, which is in effect the American dye industry itself, and in no case can the Hun-made product compete with that of an American manufacturer. Only such dyes as are needed and are *not* being made here can be brought into the country, and as fast as such dyes are developed by Americans they are to be removed from the list.

In conclusion, we would say that we have every respect for these two worthy gentlemen who, with what information on the subject they had at their command, proceeded to do their obvious duty. If more than the strictly essential portions of their writings have been herein quoted, this has been done because of the general interest to the industry which press comment of any description naturally would have.

It is the intention of the REPORTER in the near future to give more attention to the opinions of the press of the entire country on the dye situation, and as a part of our service to readers we shall begin to print regularly pertinent portions of dye editorials from all over the United States and England (in some cases accompanied by our own views), to the end that those interested may be enabled, through fifteen minutes' reading each week, to gain a comprehensive grasp of what the editors of two nations are thinking about us. Further details of this new feature of the REPORTER will be announced next week, accompanied by the initial appearance of the department in question.

Six hundred and thirty tons of miscellaneous dyewoods were exported from this country during the month of from this country during March.

MILLER LEAVES NATIONAL

Word reaches us that William T. Miller has resigned as secretary of the National Aniline & Chemical Company, Inc., which position he has held since the organization of this company. It is our understanding that Mr. Miller intends to form a company of his own which will deal in dyestuffs and allied chemicals, and that a definite announcement to this effect may be expected in the comparatively near future.

Mr. Miller has been associated with the dyestuff industry in America for a matter of twenty-four years. For sixteen years of this time he was in the New York laboratory of the Farbenfabriken of Elberfeld Company, and when Dr. William Beckers, who was also with that concern, went into business on his own account Mr. Miller joined him and became manager of the W. Beckers Aniline & Chemical Works in Brooklyn, N. Y.

When the W. Beckers Aniline & Chemical Works was incorporated Mr. Miller became secretary and general manager of the company. He also became a director in the Standard Aniline Products, Inc., a subsidiary of the Beckers company.

Later on, when the Beckers company amalgamated with the Schoellkopf Aniline & Chemical Works, General Chemical Company, the Barrett Company and the Semet-Solvay Company to form the National Aniline & Chemical Company, Inc., Mr. Miller was elected secretary of the new company and held this position up to the time of his resignation a few days ago. In accepting Mr. Miller's resignation the board of directors of the National company expressed deep regret at the loss of his services.

Mr. Miller is without doubt one of the best informed dyestuff men in America to-day. His long and varied career in the dyestuff field has brought him into intimate contact with all phases of the industry. He has proven himself an exceptionally capable executive and his personality has been such that he has made a host of friends among both consumers and manufacturers. The Reporter wishes him the best of success in any new venture which he may undertake, and feels confident that these sentiments are shared by the industry at large.

PROTECTING AMERICAN DYE INDUSTRY

By Joseph H. Choate, Jr.*

At the outset of the dye famine we were in a state of lamentable ignorance. None of us knew dyes from inks or sulfo-acids from sulphuric acid. We know little more now of the technical side of the industry, but, thanks to the patriotic labors of many of you gentlemen (notably your past president, Dr. Herty), who sacrificed no end of time and toil in the Herculean task of educating us, we finally learned enough to understand and piece together the main facts in the vast masses of information which were placed before us.

Of course, we instantly saw that the whole industry was permeated with German influence; that German chemists were ubiquitous, and that the myth of their superiority had been so industriously propagated that it had become almost an article of the American business faith. Most people (especially those who knew nothing about it) thought that nothing chemically good could come out of any other country than Germany. Nevertheless there was a surprising lack of apparent German ownership. The law required, under stringent penalties, immediate report of all such properties, yet months after the passage of the act only a negligible few of such reports had been filed. The Hun ownership seemed to have evaporated. This, however, did not stop Mr. Palmer or Mr. Garvan for an instant. They commenced to dig, and called me in to man one of the shovels, and in the end we rooted out a mass of hidden property sufficient to have gravely endangered the industry if it had remained undiscovered.

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*From an address delivered before meeting of American Chemical Society at Buffalo, N. Y., April 7-11, 1919.

From the first our efforts were centered on the dye industry. The other branches of the profession, except that of pharmaceuticals, which was closely allied with dyes, seemed as a whole safe and genuinely American, and while we did eventually detect and take over a few large concerns in this field—like, for instance, the Heyden Chemical Works—it did not worry us. The dye industry, however, did. Our national manufacture in this line had been for years a puny and delicate infant, wholly at the mercy of the Hun. It had been allowed to do no more than finish or assemble German intermediates; and though, since August, 1914, its growth had been phenomenal, we felt that its hold on life was of the feeblest. No one could study it as we did, for even a single day, without seeing that it was indispensable to other industries producing billions of dollars' worth of goods each year; that it only could insure to us in war adequate supplies of explosives, and that it alone offered in and by its immense research requirements insurance of the progress of the country in industrial and medical science. No one could see it as we saw it without coming to believe that it was perhaps the most essential of all the key or pivotal industries. The dye industry therefore had the most and the best of our efforts.

We found, of course, that the production of coal-tar dyes was practically a German world monopoly. Starting with every advantage — cheap raw material, cheap labor; above all, cheap chemists; government subsidies, transportation at or below cost, and close co-operation with the universities—the German makers had made a determined and successful effort to enslave the whole world to German dyes. They had stuck at nothing. Combined as our law forbids us to combine, in two strong cartels, they had deliberately assaulted, with intent to kill, every nascent foreign dye industry, including ours. Wherever anyone started making anything that would be useful in dye making they instantly cut its price in half. Protected in their high prices at home, and amply strong financially, they could afford to take severe losses for the short time required to drive out the newcomer, after which they could quickly recoup by doubling the original price. Where this method was unavailable they used full-line forcing, refusing to sell their patented colors except to those who would buy their other goods. Added to this was incessant, unlimited, barefaced graft—the wholesale bribery of dyers. Finally, in 1916, the two cartels, with all the outside large concerns, had combined in one gigantic trust, which issued new securities to double its capital and united companies whose assets totaled half a billion dollars. This monstrosity was organized avowedly to fight to win back the export trade. Its production is so huge that it must win or go bankrupt. How it will fight we now know. Its share of the war after the war will be utterly ruthless. The American industry must be helped or it will be "spurlos versenkt."

The strength of the trust lay in its largest six members—Bayer, Badische, Berlin, Hoechst, Kalle and Cassella. Each had a flourishing agency corporation here. Three of these—Bayer, Berlin and Kalle—early reported themselves as German-owned. The other three did not. Investigation, however, showed actual German ownership in all, and in its course revealed nearly all the pet methods of Hun camouflage.

First, and easiest to deal with, was the pretended transfer of stock by which stock really German-owned passed on the books to dummies in this country. This was generally shown up as soon as the real contract was developed, since it always turned out to leave the alleged Hun seller of the stock everything he had before the sale. More difficult was the oral option method under which the stock was placed originally in American hands subject to purchase on nominal terms at will. More difficult still was the outright secret truth, which, like the option, left the stock in apparently American hands from the first, but held for the German. In some cases we proved the trust and Hun ownership only after an accounting which showed that unless such ownership existed the president of the company had robbed his stockholders, paying over to Germans money which on the face of the books belonged to the record owners of shares. Most difficult of all was an underground method, peculiarly Hunnish, discovered in the companies which reported at the outset. These surrendered with such ease as to put us on our guard, and eventually we found, in the case of Bayer, that the Hun officers of the American company had all arrangements made for scuttling their abandoned craft and piping all its cargo of business to a new company which they had bought with its money. This was detected just in time, and the new concern was seized and sold with the old.

But if I should try to tell you half the methods of fraud and trickery which we had to combat, this meeting would not be over in time for next year's to begin. Hun methods in business were like Hun methods in war. Either could be deduced from the other, and neither knew any limit of decency or self-respect.

Coming to realize this, we came to the conclusion that, though it was perhaps none of our business, we ought to do what we could for the dye industry, doomed as it was to fight such odds. We could see that no tariff alone would ever help it. The German monster, fighting for its life, would mind duties no more than postage. But, studying the situation, we saw one gleam of light. That was the patents. There were thousands of these, many of them product patents. They were taken out, we thought, more to prevent import than to stop manufacture, since the Huns were not afraid of our makers. If they would stop imports for Germans they would stop them by Germans. So we got the law amended so that the custodian could seize the patents. He seized them.

Then it became necessary to get them into American hands strong enough to protect them. No ordinary sale would do, since sale to a weak company would be useless and to a strong company would create a dangerous monopoly. At that stage the fertile brain of Mr. Garvan conceived the idea of a sale to a trustee corporation formed for the purpose. This idea germinated with remarkable speed and met an astonishing response, and the Chemical Foundation, Inc., is the result.

This corporation thus formed at the suggestion of the custodian is capitalized at $500,000, and to it the patents --4,500 of them—and trade-marks have been sold in one block for $250,000. It holds them subject to an obligation to license under them on equal and reasonable terms manufacturers of undoubted competence and 100 per cent Americanism and to defend them by instantly proceeding against anyone who imports or makes infringing goods. Since many of the patents are product patents, this should serve to keep out some of the more recent and important German dyes.

The stock of the Foundation is limited to 6 per cent dividends so that it can never be a profit-making company, and it is non-transferable without consent of the company, so that control may not be purchasable. The preferred stock is to be retired as soon as possible, and the common, which alone votes, is to be placed in a voting trust for 17 years, the trustees being Messrs. Otto T. Bannard, George L. Ingraham, Cleveland H. Dodge, B. Howell Griswold, Jr., and Ralph Stone. The officers and directors are : Mr. Garvan, president; Col. Douglas I. McKay, vice-president; George J. Corbett, secretary; Ramsey Hoguet is its patent counsel, and I am its ordinary legal adviser. The Foundation is thus assured for a long period of absolutely impartial control, and since no one is to be allowed to buy more than a share or two of the voting stock, the impartiality should continue.

The charter provides that after the redemption of the preferred stock the income of the Foundation shall be used for research and the advancement of science, and on this line we see infinite possibilities of service. If, as we hope, its income is large, it can stimulate invention by buying new discoveries, can co-ordinate research by bringing together the academic governmental and industrial laboratories, and can collect and render accessible information as to laboratory facilities now nowhere available. It can, we hope, license the use of German trade-marks and trade names and insist on the quality of the goods on which the marks are to be used. It can take over copyrights and use them to make more accessible the best of scientific literature. By reason of its unique combination of industrial connections and impartial control it lends itself to a hundred different public services for which no other organization is adapted.

The custodian's story of German methods has thus led to what seems an important constructive work. It stands to-day as the sole defense of our new dye industry against the onslaught that will fall upon us on the signing of peace. It is a partial and imperfect defense only. The patents cover but a fraction—of the dyes the country needs. Unless Congress awakes to the fact that nothing but a license plan like the British can stop the flood, the defense may be utterly submerged.

On this question I must differ with Mr. Culbertson of the Tariff Commission. A tariff alone will be no defense against the German attempt to secure its world trade. In order to get back their market they will undersell, even with a tariff of 100 per cent, thereby destroying domestic competition, then jump their prices, even as they have been known to do in the past, and recoup.

The Chemical Foundation and tari provisions will help, but are they to b the only protection? Do you suppose the Germans are doing nothing at this time? Do you suppose they quietly submit to the loss of their trade without a scheme as to its recovery? The best information which the Alien Property Custodian's office can secure reports large stocks accumulated in Germany, both of intermediates and finished dyes. Each will do something, but we cannot save the industry without more protection. I say this not as my own opinion, nor that of the A. P. C. office. When the man on the other side of the wall reaches the same conclusion, there is something in it. I have never heard of a case before where the man who bought the goods and whose prices would be increased by the measure came to advocate that measure except when that measure was demonstrably and certainly right. Now in this case our judgment is fortified by that of the dye-consuming industry. I have addressed meetings in Boston, Providence, New York and Philadelphia, and as a result a cable has been sent to the President, signed by 150 most important firms in the country, the men who must buy the dyes and who will have to pay more if the license plan comes into effect and who will suffer if they cannot get all the goods they want. It is the most remarkable example of patriotism I have seen.

March 25, 1919.

To the President of the United States:

The undersigned, representing various branches of the textile industry, respectfully submit that in their opinion an independent, self-sustaining American dye manufacturing industry is a national necessity; that such a dye industry cannot be established unless competition from German factories, including those in occupied territory, be cut off for a period of years; that no tariff will furnish protection against the enormous resources and unscrupulous methods of the German trust fighting to regain its foreign market; and that only a licensing plan like the British excluding all foreign dyes reasonably obtainable in the United States will save the new industry. We respectfully urge that immediate steps be taken to procure, both in the peace treaty and in legislation, the measures necessary to establish such a plan.

We advocate this not merely because a domestic dye industry is essential to the independence of the American textile industry and manufacture generally, but chiefly because we believe that only through an established dye industry can the nation secure the progress in chemical education, in the application of chemistry to the arts and, above all, in curative medicine which are indispensable to the national welfare.

That, gentlemen, is what the dye-consuming industry thinks of it—the manufacturers of textiles, woolens, cottons, silks, hats, inks, leather, printing; in fact, every industry. This is the way they have put themselves on record. When they say that this measure is right I believe it. If you want to save this industry, the way to do it is to get at your congressman and whisper your views in his ear. Put it as strongly as you can, and you will get such legislation.

In conclusion it is clear that great progress has been made in the development of this industry which truly represents a national necessity. American manufacture is free in almost the whole dye field, and is already on its way to fill our every want. With all the forces now at work in its defense it will be saved. German methods will never again be allowed to do to the American chemical industry those things which they have done in the past.

NOTES OF THE TRADE

"As conditions exist to-day," remarks the Boston *Post* in a recent editorial, "the supply of dyestuffs required in our various industries can be measurably furnished by our own producers. We can hold off the intruders without suffering deprivation."

J. R. Geigy, S.A., the well-known manufacturer of aniline colors, of Basle, Switzerland, has announced that his concern now has Erio Green B available and ready for delivery.

With a capital of $1,600,000, the Warner-Klipstein Chemical Company has been authorized in West Virginia. W. B. Thom, 52 Vanderbilt Avenue, New York City, has been named as representative of the firm.

The Suckow Chemical Company has been incorporated under the laws of California with a capital of $400,000. The incorporators are J. K. Suckow, George S. Greene and Otella Suckow, of Bakersfield, that State, where headquarters of the new concern will be located.

With a capital of $25,000, the Rubitan Chemical Company has been incorporated under the laws of Missouri. The incorporators are H. C. Lansford, W. E. Bilheimer and E. E. Jones, and the head offices of the company will be in St. Louis.

The Barrett Company has announced that it will pay a quarterly dividend of $2 on the first of next month on the common stock of record June 16, and on July 15 a quarterly dividend of $1.75 on preferred stock of record June 30.

AMERICAN DYESTUFF REPORTER

Vol. IV, No. 24

June 16, 1919

IN THIS ISSUE

Introducing

"The Dye-gest"

A New Department of the Reporter Representing a new Departure in Its Service to the Industry.

The Dyeing of Silk Hanks

Publicity and Propaganda as Aids to Protection

An Editorial

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
"Circulated Everywhere Dyestuffs are Used"

Vol. 4 New York, June 16, 1919 No. 24

INTRODUCING "THE DYE-GEST"

Republican Instruments Play Air and Democrats the Variations in Editorial Symphony Orchestra's Rendition of "Special Legislation" Music

WITH this issue, the publishers of the REPORTER take no small degree of pleasure in announcing the inauguration of a new feature which will henceforward appear as a regular department of this journal, and which, it is believed, will prove of considerable interest and usefulness to readers. If this is accomplished, we shall feel amply repaid for any time and trouble which may have been expended upon it, for it was solely this idea which led to arrangements for its preparation and maintenance.

If a business man should try to wade through one-tenth of the columns and columns of editorial matter and general press comment which appear daily all over the country, in order to seek out that which might be of interest, he would have to spend so much of his time that he might as well let his business go. Nor are even those portions which deal exclusively with his business always worth reading in their entirety. It was felt, then, that if the REPORTER were to undertake to sift each week the sayings of the press so that readers could gain a comprehensive grasp of nation-wide editorial opinion anent the various steps in the steady development of the dye industry—and could thereby enable them to do this with a minimum expenditure of time and effort—it would be performing a real service to those who like to keep in touch with what others think. The result was "The Dye-gest."

In this new department the reams of comment in the daily newspapers which follow upon the heels of every fresh activity of the dye industry will be gathered together and crushed, flung into the REPORTER's editorial cauldron, boiled and lixiviated, the waste liquor drawn off, and the essence served up in crystalline form for the benefit of our readers—and all this without any advance in our regular rates! This week it makes its appearance in place of the customary leading article; next week and as a general rule thereafter it will be found somewhere aft of the editorial page—possibly sandwiched in between the "Inquiry Department" and "Notes of the Trade." It may be either voluminous or brief, according to the amount of attention given the industry by the newspapers. and once in a while, when no comment is made, it may vanish utterly. But this will not be often, for it is the purpose of the publishers not to disappoint those who may chance to become habitual readers.

Here, then, is the first bow of the new department. If you like the idea of having it in the REPORTER, why—just go ahead and use it; if, on the other hand, you think it could be improved, your suggestions will be welcomed.

Gentlemen,—"The Dye-gest!"

ON SPECIAL LEGISLATION FOR THE PROTECTION OF THE DYE INDUSTRY

Although there seems to be some disposition on the part of our editors to consider the dye industry's plea for special protection strictly on the merits of that plea, and to regard the dye industry in its true light—as a thing apart from politics—nevertheless the press of the country, in the main, runs "true to form" in its discussion of recent actions on the part of those who would shield the dye makers from the Hun. That is to say, the Republican papers automatically support and endorse all high-tariff and other protection talk, and the Democratic organs, equally automatically it would seem, view such utterances with a suspicion which runs the entire gamut of gloom, from vague doubts to downright denunciations.

In fact, whenever the great editorial symphony orchestra undertakes to play selections from the Dye opera, it is the Republican instruments which sound the major chords and the Democratic which contribute the minor effects. The former carry the air and the latter take care of the variations. This is just as Dr. Taussig said it would be, and while the result is not always harmony, it is no more than was to have been expected. As we took occasion to point out in these pages last week, the discords are due to the lack of a complete score rather than deliberate misreading of the notes, and in this it would be unfair to draw any sharp distinction between those who play true music and those who do not, for neither, in a large majority of cases, have had time to study the complete composition. It merely happens that of the adherents of the two principal schools of interpretation, one group was potentially right and the other wrong. It would have been the same if the real facts of the case had been the reverse, with no more praise or blame due either school than in the present instance. Only to those Democratic musicians who have striven to render their scores sympathetically, without regard to the hard and fast rules of their school, is credit due.

Some brisk—not to say forceful and picturesque—comment was called out recently by the arrival of German-made goods, including toys, in New York, with the accompanying report of more to follow. After citing instances of the sale of some of these goods, the Des Moines (Iowa) *Capital* takes up its cudgel to condemn the practice in no uncertain terms. It asks: "Is it possible that love for the dollar is getting away with some of our patriotism?" and continues: "It is explained that the German goods now being brought to New York were bought before the war. This we presume, is an apology, and possibly not true. The situation is not justified even if the goods *were* purchased before the war."

"Softies" and "traitors" are the Iowa editor's terms for those who connive at the threatened practice. Referring to the foregoing, he says: "This brings up the inquiry in regard to what America is going to do about dyes . . . Making a dye that will maintain its color is the test. And the Americans have triumphed. To induce capital to invest in the dye-making establishments, the manufacturers of cotton and woolen goods made long time contracts, assuring them of some business even after the war. But when the contracts expire and the American softies have fallen on the necks of the Prussians, forgiving them for all their crimes, the American dye manufacturers will be compelled to compete with the Germans. In our judgment there is only one way to preserve the dye industry in America and that is by giving the American dye manufacturer the highest kind of a protective tariff. This will be galling to a few traitors. Some manufacturers are not fond of tariffs. And the tariff has in a measure, been in disgrace. But it will resolve itself into this: The dye industry must be protected or Germany will again take the business."

Viewing the same subject from another angle, the Waterbury (Conn.) *American* waxes sarcastic in its treatment of Alien Property Custodian Francis P. Garvan's plea to the American cotton manufacturers to use American dyes for patriotic reasons. A totally different conception of the word "traitor" manifests itself as this daily asks: "How would a duty on foreign dyes, sufficient to protect the American product and give the American manufacturers a little margin of advantage, work?"

"Mr. Garvan didn't mention that," the Brass City editor continues; "it may be that he takes the view of other optimists that American manufacturers will buy American dyes anyhow, even if they have to pay higher price for them, and do it gladly out of love of country. Many of them no doubt would, but some unpatriotic person would be tempted to buy the cheaper German dyes and then the rest of them would have to, or else give up the business to him."

Equally pessimistic, but less sarcastic, was the New York Evening *Telegram* when it said: "The future of this industry is now a matter of concern, and the question is being asked whether the foreign dye monopoly has been broken for all time, or will Germany flood the American market with cheap dyes after the peace terms have been established and strangle the American industry? From the desire evidenced, in and out of season, to be friendly with Germany, it is to be feared the infant industry will be stifled and the rich trade revert to Germany. The sneaking in of those tons of German toys by order to the State Department is hardly a hopeful sign for any protection of American industries."

On the assumption that some cheap German dyes and German-made toys have been brought into the country, the New York *Commercial*, better informed than those just quoted, declares: "We can look with perfect composure on this condition," and in support of this cites the Chemical Foundation, Inc., and the recent decision of the War Trade Board to license dye imports and distribute them through the former organization. "At the worst, we could absorb all the German dyes held in China without making a dent in the industry here," it continues. "The episode would be forgotten in a few days, while we can almost hear the American dye industry growing." The whole situation, it believes, warrants the conclusion that "there is not a single article of commerce for which we would lean on Germany to-day. If the Central Empire vanished overnight the United States would suffer no inconvenience of an industrial or commercial nature."

This confidence is not, however, shared by the Rochester (N. Y.) *Post*

Express, which takes as its text Major T. W. Sill's report that German dye plants are in good condition and ready to begin manufacturing again on a large scale. The Rochester editor holds that there is no doubt but that Germany "can strangle world trade in dyes and medicinals if she is permitted to do it," and points out that what little damage was done by the Allies has been easily repaired, that materials are in readiness and a skilled labor force on the ground. On account of this, he reasons, "nothing will prevent a rapid rush of German-made goods from these plants into world markets, and especially into our markets, except legislation to protect our markets from dumping of German chemicals into them."

Others, likewise, are emphatically certain that we need legislation and plenty of it before we can count ourselves safe from further molestation at the hands of the dye-making Hun, and among the most earnest is the Baltimore *Star,* which, while taking full cognizance of the action of the War Trade Board (which it erroneously refers to as "the Board of Trade") and the creation of the Chemical Foundation firmly contends that "additional legislation is needed to enable us to retain control of those interests which the hazards of war have played into our hands." It doubts "whether the Allied nations have even yet grasped the significance of the tremendous fact that the once world-powerful German industrial machine is now crushed," for, it argues, "were it intact, Germany would not have collapsed and the war would not have been ended." Further on it opines that "so complete an economic collapse is not known to history," yet in spite of this, it feels that "only specific action on the part of Congress will give to the dye and metal men the assurance of absolute release from German monopoly," and it concludes that while "much has been done toward the destruction of the German octopus," nevertheless "even this ac-accomplishment can only be made effectual for the United States as it is backed by Congressional action."

In this the Norwich (Conn.) *Bulletin* heartily concurs, and it makes haste to meet a possible objection with the contention that although "the idea of eliminating competition, in view of the fact that competition is considered to be the life of trade, may be looked upon with some hesitation if it is to be applied to American manufacturers," yet "what certainly needs to be done is to give the American manufacturers of dyes and chemicals the protection which they will henceforth require to overcome the competition of German manufacturers." This Connecticut editor agrees that there is much merit in the belief that American consumers should be committed to the use of American dyes, but he nevertheless maintains that "Congress cannot afford to overlook the importance of seeing that this new industry is given the needed protection." He avers that not only those who have gone into the manufacture of dyes and chemicals in this country, but those who have been buying from such plants "are anxious that every possible encouragement should be given to this industry," and he is convinced that they likewise feel "anxious that such enterprise as has been shown in meeting the needs of the country during the emergency should be upheld and protection given it against the return of the German dyestuffs which were poured into the country previous to the war."

The Buffalo *News* in like manner sounds the call for legislative action under the caption "Dyestuffs Need Protection," contending that the present bulwark has "gaps in it which must be stopped if it is to prove a barrier against German manufacturers, who have entered upon a campaign to re-establish a world monopoly such as they had before the war." It is in agreement with the view taken by the REPORTER that the seizure of the 4,500 German dye and chemical patents, accompanied by the organization of the Chemical Foundation, was a step in the right direction, but, it observes, "it may be difficult in suits for infringement to prove, even by analysis, that an imported dye has been made by the patented process," inasmuch as intentionally misleading materials have been known to have been included in the various processes. Hence, it hopes "that Congress straightway will give attention to the new industry's needs and will provide means of protection that will be effective against the German campaign of invasion."

That the recent petition presented to President Wilson urging the adoption of a licensing system for the dye industry is the "first step" towards protecting American manufacturers, is the opinion of the Troy (N. Y.) *Record*, which declares that "the next step will be to urge enactment by Congress of tariff laws which will enable what is now an 'infant' industry in this country to become established sufficiently to compete with old, established concerns abroad." Of William S. Culbertson's statment that the coal tar industry is "a clear case deserving of legislative help" it asserts "there is no question about this," and goes on to say; "But there must be protection if a fledgling industry is not to die." In pointing out that many important and much-needed dyes are not yet being made in the United States, it observes that "obviously the dye industry here is in the infant state" and that "it will go to the wall and the United States will lose the advantages given it by the war unless the industry is given legislative protection."

Most emphatic of all is the Springfield (Mass.) *Union*, which insists that "nothing but a complete embargo on German dyes for a few years will serve the purpose," for, it points out, during the time which yet remains before the industry can develop into an unassailable unit "no tariff would be sufficient to keep out German dyes."

(Note--Complete typewritten copies of editorials quoted in "The Dye-gest" will be sent anywhere, postpaid, on receipt of 25 cents each.)

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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

PUBLICITY AND PROPAGANDA AS AIDS TO PROTECTION

From time to time we have urged in the editorial pages of the REPORTER that the dyestuff manufacturers of America should enter upon a campaign of co-operative advertising with a view to creating popular goodwill toward and a complete understanding of the problems and needs of the American Dyestuff industry.

Up to the present time the industry has been artificially protected by the state of war which has made it impossible for other nations to compete seriously in this market. Through the recent action of the War Trade Board in appointing what amounts virtually to a licensing committee we have still further protection, but inasmuch as the War Trade Board itself expires, by statutory limitation, six months after the ratification of the treaty of peace, there is very urgent need that Congress enact some sort of licensing legislation which will be of a more permanent character.

In order to place the dyestuffs consuming interests of the country and the public at large in a frame of mind favorable to such legislation it is extremely desirable that active publicity and propaganda work be entered into by the dyestuff manufacturers. We are informed that the American Dyes Institute has taken official cognizance of this need of publicity and has gone so far as to appoint a publicity committee. It would seem that this is the logical channel through which propaganda work of this nature should come and we respectfully urge this committee to give the matter serious attention without undue delay.

In our opinion the textile and other consuming interests can be made to realize the essential necessity of protecting the American industry—even though it may mean temporarily greater expense and some inconvenience to themselves — through a carefully planned campaign of advertising and editorial propaganda carried on through the trade and consumer press. Such advertising and propaganda should dwell upon the fact that the manufacture of dyestuffs is a key industry upon which other vastly greater industries are entirely dependent; that unless the industry is adequately protected it cannot be expected to survive in the face of the sort of competition which may be expected from the Germans if they are allowed to compete in this market; that the only form of protection which will be really adequate is complete protection—that is, some form of import licensing.

Over and above these fundamentals, intelligent advertising and propaganda to the consumer and the public would build goodwill for the industry in that it would increase general knowledge of the difficulties which have been overcome and the problems which still remain to be solved. It would create a genuine patriotic pride in the American color industry and a popular desire to see it survive and flourish, even at some personal cost or inconvenience.

Just what forms this advertising and propaganda should take it is for the committee of the American Dyes Institute and the publicity experts whom they may employ to determine; but of one thing we are certain beyond peradventure of a doubt—organized publicity and propaganda in behalf of the American Dyestuff industry is greatly needed and the time to begin it is now and not after our temporary protection has been removed.

CHICAGO TO GET CHEMICAL EXPOSITION THIS YEAR

The Fifth Annual National Exposition of Chemical Industries will this year be held in Chicago at the Coliseum and First Regiment Armory during the week of September 22d, and as usual there will be a number of society meetings held jointly with it. It is an encouraging sign that the American Institute of Mining Engineers is among the number. We hope that this contact between mining engineers with things chemical, chemists and chemical engineers will be to their increasing and mutual advantage. We know there is much that the mining engineers may gain from the chemical exposition, and without doubt they will leave behind something of value.

The movement to Chicago was decided unanimously last September at a meeting of the advisory committee of the exposition with the managers of the exposition for two reasons: The U. S. Army commandeered the Grand Central Palace exposition building immediately upon the close of the last exposition, to be converted into a receiving hospital, the use for which is now, happily, nearly ceased; the Chicago Section of the American Chemical Society had been active in their interest in the exposition and were keenly interested in having it given in the city of Chicago; the Association of Commerce felt a keen interest in welcoming the exposition, and it was one thought that the exposition would succeed in bringing about a greater development along lines of chemical industries in the Chicago district and the near adjoining states.

The advisory committee of the exposition consists of Dr. Charles H. Herty, chairman, editor *Journal of Industrial and Engineering Chemistry;* Raymond F. Bacon, director, Mellon Institute; Dr. Leo H. Baekeland, member Naval Consulting Board; Wilder D. Bancroft, president, American Electrochemical Society; Henry B. Faber, Industrial Filtration Corp.; Ellwood Hendrick, president, The Chemists' Club; Dr. Bernhard C. Hesse, chemist, General Chemical Company; Arthur D. Little, president, Arthur D. Little, Inc.; William H. Nichols, president, American Chemical Society; R. P. Perry, vice-president The Barrett Company; H. C. Parmelee, editor *Chemical & Metallurgical Engineering;* G. W. Thompson, president, American Institute of Chemical Engineers; T. B. Wagner, vice-president, U. S. Food Products Corporation; M. C. Whitaker, president, U. S. Industrial Chemical Company; and Charles F. Roth and Fred W. Payne. There is also added a special Chicago committee consisting of L. V. Redman, W. D. Richardson, A. V. H. Mory, Carl S. Minor, F. W. Willard and William Hoskins; the managers, as in the past, are Charles F. Roth and Fred W. Payne, and the general office is at 417 South Dearborn Street, Chicago, Ill.

When first the move to Chicago was planned it was decided to use the largest available exposition building there, the Coliseum, which is conveniently located for the business, hotel, residence and industrial centre of the city. It soon developed that the space in the building was inadequate and shortly after the signing of the armistice when Government property formerly excluded from entree of the public was again opened, the management made arrangements to engage the First Regiment Armory for exhibits and meetings of some of the societies. The armory faces the next parallel street which is Michigan Boulevard and is divided from the Coliseum only by a narrow alleyway across which visitors will step from exhibit to exhibit. The managers report that considerable of this space is already engaged, and that from present appearances, the companies engaging space therein being Chicago concerns, will make a creditable showing for Chicago Industrial progressives.

Speaking of the number of exhibitors they say that there are already a larger number than at a similar period last year with many new companies which had not formerly exhibited. There are also the names of regular exhibitors which have become inseparably connected with the exposition and which have become established as a bulwark of the American chemical industry or supplying the chemical industries.

Of the meetings to be held in connection with the exposition a splendid program is in preparation which includes the general meetings of the American Electrochemical Society, the American Institute of Mining Engineers and the American Ceramic Society; the Technical Association of Pulp & Paper Industry is planning to meet with the exposition in several technical sessions. The Chicago Section of the American Chemical Society will have headquarters at the exposition where it is likely a meeting will be held. There is already an indication that these meetings will be interesting ones; the Mining Institute is arranging a session upon a Pyrometry symposium which will consider several phases each of Methods of Pyrometry, Industrial Pyrometry, Pyrometry and its Relation to Science. Special stress will also be laid upon the iron and steel industry by the institute. The American Electrochemical Society is planning an interesting program, so, too, is the Ceramic Society.

There will be in Chicago during the week no other conventions than those invited by the exposition; by this there is assured adequate hotel accommodations for the thousands of visitors who will go to the city.

AN ALL-AMERICAN ART

The Rich Coloring of the Navajo Blanket, Once Dependent Upon German Dyes, Now Bids Fair to Become All-American.

The most beautiful and artistic of all American Indian creations is the Navajo blanket or rug. Made only by the women of this tribe, it is universally admired and highly prized by art collectors, connoisseurs and beauty-lovers for its originality of design and unmatched color effects.

The Navajo women weaver uses no patterns, but gives full vent to her imagination in developing her design. Thus, no two Navajo blankets are ever exactly alike. Sacred emblems of the tribe's religious ceremonies, intricate and often strikingly handsome, are sometimes woven into its texture. Or. it may be a sacred rite, a tribal legend or the expression of the imaginative soul of the patient, impassive weaver herself that is worked out in signs and symbols that are as a closed book to the white man.

Because of a curious superstition, which no member of the tribe has ever been known to violate, the Navajo blanket, with all its perfections, is always imperfect. These people believe that if they should weave a blanket perfect in every detail they would never live to weave another. That is why an extra stripe, a larger figure, a different blending of colors or a peculiar design is introduced into every blanket, although to the uninitiated these variations are generally hard to detect.

It is in the color treatment, however, that the Navajo blanket is absolutely unique. Given a blanket for a model, the white man can approximate the design on his loom, but, with all his ingenuity, he is baffled when it comes to achieving the same color effects. The Navajo uses a loom so primitive that the loom of our Colonial ancestors ranks as a highly complicated piece of machinery in comparison. It consists of two forked posts driven into the ground, with a crossbeam supported in the crotches.

The Navajo fastens the warp on this frame, sits flat on the ground before it, takes a ball of yarn, and, using her hand as a shuttle, starts across the beam, cutting out a color or changing a design whenever she chooses. On the white man's loom this is impossible. Once a color is started it must be carried across the beam and shows in the finished product on one side or the other.

Until a few years ago, the Navajos used their own vegetable dyes exclusively, and when the limited number of colors at their command is considered, the results obtained were truly remarkable. They had three natural colors in the wool from their sheep—white, black and gray. They made two beautiful yellows, one from the tops of a yellow flower, the other from a large, fleshy plant root. Dull red was made from the bark of the alder and the mountain mahogany; orange from the roots of the sorrel and black from the leaves and twigs of aromatic sumac, yellow ocher and the gum of the pinon tree. Thei bright red was secured from the bayeta, a bright scarlet cloth, purchased from Spanish traders.

The preparation of these vegetable dyes, however, was a long, slow process, and the introduction of the dyes of commerce met with a ready response on the part of the Navajo weavers. The aniline dyes gave them limitless variety of colors and were also much easier to use. For these reasons many weavers abandoned the native dyes entirely, or used them only in "setting" a color whose fastness was in doubt. Others retained the native dyes, but used the aniline dyes to provide the colors which they could not obtain from Nature. As a result, the colorings of the Navajo blanket became more brilliant, more varied and more beautiful than ever before.

Commendable as were the efforts of the Navajo weavers to improve their blankets and reduce their labor, there was one regrettable feature connected with the adoption of commercial dyes. It removed the blanket from the realm of wholly American products.

Hitherto, the genuine Navajo blanket was "all-American" in every respect. The Indians grew their own wool, sheared it, carded it, spun it, prepared the dyes, dyed it and wove it all by hand in the most primitive manner. When they introduced the new dyes into their blankets, they paid unconscious tribute to German kultur. Germany had a monopoly of the coal-tar dye industry, and the Navajos, like all other American textile workers, were entirely dependent upon her for dyes of this character.

When Germany, at the outbreak of the war, shut off all exportations of dyes to the United States, American textile workers and other users of dyes were brought face to face with a serious situation. The then existing supply of German dyes in this country was exhausted in four months. The Navajos, also feeling the pinch, were forced to fall back on their native dyes, and, as a result, their blankets lost their former brilliancy.

But American enterprise has not been lagging. Comprehensive experimental work in the development of a really substantial American dye industry, backed by matchless scientific, engineering and commercial organization, and control of essential raw materials, has been going on for some time. That this work is being watched with hopeful expectancy by the textile and other industries interested in dyes goes without saying, for the war situation impressed upon all of them the imperative necessity of an adequate, satisfactory, dependable source of dye supply in the United States.

It is merely a question of time until American dyes will be made in all known colors. Germany's reign of domination in this field is gone forever, as far as this country is concerned. Incidentally, the Navajos will again be able to furnish to an admiring world blankets that are as many hued as Joseph's coat and, more important still, all-American.—*Du Pont Magazine.*

THE DYEING OF SILK HANKS

There is perhaps no other branch of dyeing which calls for more attention in accomplishing it than the dyeing of silk in the hank form, both as regards actual manipulation and the process of treatment. At the outset particular care has to be observed in the boiling-off operation to ensure that the object of it is properly and completely attained. Uneven treatment at this stage shows its influence throughout the subsequent processes, and may seriously depreciate the value of the finished material. When the boiling off has been conducted with proper regularity, and the washings which follow it with thoroughness, the foundation has been laid for the production of satisfactory results. Discrimination must be exercised in making the modification of the boiling-off operation, necessary to the particular quality of the silk to be handled, since different varieties call for some variation. In a general way the boiling-off consists of two treatments with soap, followed by washing. In English dyehouses these soap liquors are made up of 30 gallons of water for each 10 pounds of silk, and an amount of soap ranging from ¼ pound to each gallon of water, according to circumstances. The temperature of the soap liquor is maintained at about 200 deg. Fahr., but not lower during the boiling-off. The duration of the immersion is one of the factors which rests on discrimination, but it may be stated that in a general way the time needed varies between one and two hours for the first soap liquor. At the end of the time required for the purpose the hanks are carefully removed from the liquor, and transferred to the second, which is but half the strength of the first, yet at the same temperature. The hanks are left for about one hour in the second soap liquor, and eventually washed. The first boiling-off liquor is generally kept for use in the dyeing; the second in its turn being utilized as the first. After this course of treatment the silk is considered to have been degummed, but in actuality it generally yet contains a proportion, though small, of the gum natural to it which has in some way escaped dissolution. If it be thought necessary for the purposes in view to remove the remaining gum from the silk, it should be boiled of a second time in a liquor containing about 10 per cent of soap, and then thoroughly washed. Incompete removal of the gum constitutes one of the most common causes of irregular dyeings on hanks, the gum having much less affinity for coloring matters than the silk itself. Often in dyeing, certain shades can only be produced by a mixture of colors, and as the silk may show more affinity for one component of the mixture than another, irregular dyeings are apt to be produced unless the dyestuffs have been carefully selected. Faults from this cause may be more or less remedied by stripping the color by means of soap or bleaching with permanganate and dyeing afresh.

Bleaching before dyeing, in the case of pale and bright shades, is best done with the aid of hydrogen peroxide or peroxide of soda. After bleaching it is very necessary to wash the material most thoroughly, otherwise difficulties will arise in the subsequent dyeing. In the majority of instances the dyeing of the silk should be carried out with the liquor at a temperature as low as the particular coloring matter to be applied will admit, and with the least amount of manipulation possible, on account of the delicate texture of the silk. The basic dyestuffs are usually applied at a temperature not higher than 140 deg. Fahr., and the acid and direct dyes at a higher temperature, but not at the boil. Addition of acid to the bath is made to exhaust the dyeing liquor, and addition of the coloring matter is regulated according to the more or less rapid absorption of the color by the silk. When very bright shades are to be produced, or certain medium shades, it is good practice to weigh out beforehand the necessary amount of dyestuff, dissolve it and add the lot to the dyeing liquor at the start; but in the case of a large number of pale shades it is much better to use already dissolved dyes, adding portions intermittently to the dyeing liquor until the desired shade has been attained. Most dyers prefer to have at hand ready-made solutions of the coloring matters most suitable for the production of their shades. When the dyeing of the hanks has been completed they are wrapped in clean cloths, in suitable lots, ready to be hydro-extracted and subsequently dried. The temperature at which the drying is accomplished should not be too high or the duration too prolonged. A low temperature better suits the nature of silk. Not only is the silk liable to be deteriorated somewhat seriously by the influence of high temperatures in the drying, but the color may be affected. Certain acid dyestuffs give dyeings which withstand ordinary temperatures fairly well, but become permanently altered in shade when the dyed silk is dried at a too great a heat. It may be of interest to observe that the soap best suited for the treatment of silk hanks is a good quality olive-oil soap. Unfortunately, however, soaps are made of this base which are frequently adulterated, and care and discrimination must be exercised in the choice of a suitable product.—*Textile Mercury*.

RED DYE AND RAIN SPREAD TERROR IN NEW ORLEANS

From a recent issue of the New Orleans *Times-Picayune* comes the following story of "blood" and mystery, which may furnish entertainment. Whether the imaginations of the volatile Southerners were inflamed at the time through too much waving of the "bloody shirt," or whether the justly celebrated "fizzes" of this great seaport played an important role in the proceedings, we leave it to our readers to decide:

"Noah's flood may hold the record for volume, but it remained for the 'Irish Channel' to produce a flood of blood that rivaled all deluges of history for sensationalism.

"It was during the downpour Wednesday afternoon that the neighborhood along the river front between Robert and Market streets began to run red. Streams of gore appeared, apparently from nowhere, and trickled into pools and gutters. As fast as they became diluted in rainwater, more and redder streams took their place. The phrase 'rivers of blood' seemed a reality.

"The neighborhood got all excited. The axman, judgment day and a voodoo curse were advanced as theories to explain the phenomenon, before someone had the heart to explore the mystery.

"The source was discovered on the wharf still bleeding freely—a load of dun-colored wood from which streams of red liquid were pouring. It was a cargo of Mexican dyewood in the process of being loaded aboard the freighter Beechland for Havre, France, where it will be used in dye factories. The wood had been in the warehouse for two years, awaiting shipment abroad since before the United States entered the war. When it was moved outside it produced its customary reaction to moisture and exuded red dye with all its might."

Announcement has been made by the United Dyewood Co. that a quarterly dividend of 1.50 will be paid July 2 on stock of record June 14.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

H. C. R.—Question—At times in our dye laboratory we are called upon to detect minute traces of boric acid. Can you give us such a test? Also, where can we obtain lace gum and silk sizing?

Answer—Impregnate a fiber of viscose silk with tincture of turmeric; dry and immerse in the liquor to be tested. On drying over bath, boric acid can be detected to the extent of 0.000025 milligram of boron.

The Commonwealth Color & Chemical Company has the gums and sizing you are in search of.

A. C. F.—Question—We are experimenting with colloids in relation to the manufacture of color lakes, and would like to know what type of coloid alumina belongs to and whether it is positive or negative.

Answer—Alumina is classed among the "irreversible colloids" and it "wanders" in the direction of the negative pole.

N. F. K.—Question—Can you identify the dye in the enclosed piece of blue silk? Also, who manufactures a color to match it?

Answer—This is a fast chrome color; Jennings & Co., 93 Broad Street, Boston, specialize on chrome colors for silk.

C. B. H.—Question—Our butter of late has been coming in highly colored and we are of the opinion that it is contaminated with an aniline dye. We are therefore sending you, under separate cover, a sample for your examination.

Answer—The butter contains an oil-soluble or fat color classed among those known as Non-sulphonated Azo-Dyes. It gives all the chemical reactions of Manchester Brown; we therefore suggest that you refuse all further shipments of the material.

H. A. B.—Juestion—Kindly give us the chemical properties of Methyl-Aniline?

Answer—This question has already been answered in February 3 issue, to which we refer you. This will also tell you the product obtained by acylation.

NOTES OF THE TRADE

The Textile Color Card Association of the United States has announced that owing to the great increase in the circulation of the American Color Cards, necessitating the securing of larger quarters, the offices of the association have been removed from 354 Fourth Avenue to 315 Fourth Avenue, New York. The new telephone number of the association is Gramercy 270.

The work of rebuilding is rapidly going forward on the A. C. Haak Knitting Mills, Richland, Pa., which were recently completely destroyed by a disastrous fire. The total loss was estimated in the neighborhood of $100,000.

The 1,375½ shares of common stock and 137 shares of preferred stock of the Jarecki Chemical Company, Cincinnati, which were recently auctioned off by Alien Property Custodian Francis P. Garvan, fetched a price of $150,000. The stock which went under Mr. Garvan's official hammer was owned by a number of persons living in Germany.

To become vice-president and sales manager of the Edison Storage Battery Company, Orange, N. J., Charles E. Sholes has resigned from the Grasselli Chemical Company.

F. H. McRobert, D. Weinstein and R. V. Schuyler, 102 Lincoln Road, Brooklyn, N. Y., are the incorporators of the Queens Chemical Company, of that borough. The capital of the company is $90,000.

"The Black that Stays Black," is the title of a new sample card just issued by the Atlantic Dyestuff Company, Burrage, Mass., featuring one of the company's specialties, Sulphur Black ADC Extra Strong. The card is interesting in that it contains but a single sample; this is a hosiery sample dyed with 7 per cent color, standing bath, in the dyehouse of one of the company's customers.

Frank Hemingway, Inc., has announced that this firm is now ready to supply 98 per cent hydrochloride, which is used extensively by dye manufacturers and fur dealers, and likewise a C. P. grade of the same product, considered by many to be superior to metol.

Suit has been filed against the Kalbfleisch Corporation by American Synthetic Dyes, Inc., for $5,541, which the latter alleges is due under a contract for products delivered in 1916. The plaintiff states that only $972 has been paid on account.

France, it is announced, now permits the importation of dyes made from natural products such as roots, leaves, berries and barks, as well as prepared dyes, except those derived from coal tar, without a special license. There is no embargo on coal-tar dyes, except that as heretofore, a special license is required with each invoice.

With a capital of $25,000, the Seerite Chemical Company has been incorporated at Dover, Delaware, to manufacture chemicals by C. L. Rimlinger, P. B. Drew and T. L. Croteau, of Wilmington, that State.

To manufacture chemicals and allied specialties, the Bellevue Laboratories have been incorporated under the laws of New York with capital of $200,000. The plant will be located in Brooklyn, and the incorporators consist of W. B. Strickland and G. W. Bates, New York, and R. E. Feneville, 2 Forest Avenue, Queens, N. Y.

American Patent 124,882, issued to H. W. Peth, New York, describes a method of pressing cloth and garments by placing the goods in a steam-heated bed covered by fabric and subjecting them to the action of a steam-heated plate perforated to allow the steam to pass through freely.

AMERICAN DYESTUFF REPORTER

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AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to

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"Circulated Everywhere Dyestuffs are Used"

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THE CASE OF THE DYE INDUSTRY

As Presented for the Chemical Foundation, Inc., by Francis P. Garvan and Joseph H. Choate, Jr., President and Counsel, Respectively, to Congress

BRISTLING with unassailable arguments for the adoption of licensing legislation for the protection of the dye industry of this country, and containing a wealth of reasons why the industry should be considered as a thing apart and entirely beyond the reach of mere political maneuvering, the brief presented to the House Ways and Means Committee of Congress by Alien Property Custodian Francis P. Garvan and Joseph H. Choate, Jr., forms at once the most convincing and the most educational document on this subject in existence to-day.

Its contents should be made familiar to every consumer of dyestuffs and every layman in the country, and its salient features should be taken as the nuclei of all publicity to be issued in future by the recently appointed committee of the Chemical Foundation in furtherance of public understanding of the true situation.

The purpose of the document is to guide the Ways and Means Committee in its ultimate recommendation to Congress on final action for the protection of the industry. As reported in the New York *Times,* its preamble briefly explains the organization and purpose of the Chemical Foundation, following which it plunges into an exceedingly succinct and careful definition of just exactly what the proposed licensing plan is and what it is not. In regard to this portion of the document, we cannot do better than to reproduce it in full:

"WHAT THE LICENSING PLAN IS.—It is a temporary measure designed to cover the period necessary for the building up of a complete self-sustaining coal-tar chemical industry in this country. It permits the importation of coal-tar products in any quantity of any quality, at any price, from any source when—and only when—the proposed import is licensed by a licensing commission appointed by the Executive, and consisting of, say, four members chosen from among the dye makers, an equal number from among the dye-using industries, and one member not connected with either industry and representing the Government itself.

"The duty of the commission, under

the proposed bill, would be to admit by license all dyes and other coal-tar chemicals found really necessary in our industries and neither obtainable within a reasonable time from domestic sources nor replaceable by any entirely satisfactory domestic substitute, and to exclude from importation all such products as now are or presently will be manufactured in the United States in satisfactory quantity and quality.

"WHAT IT IS NOT.—The licensing plan is not an embargo. It is not a permanent measure. No one would advocate its enactment for a period more than, say, ten years. If, at the end of that time, our dye industry has not reached, or nearly reached, a self-sustaining status it will have been proved that the Germans were right in their repeated assertions that we are incapable of establishing such an industry.

"It is not a substitute for a tariff. Customs duties may be levied whether or not the plan is adopted; and there is no reason why licensed imports should not pay such duties."

The brief then continues:

"WHY A NATIVE DYE INDUSTRY IS NECESSARY.—A complete, self-sustaining, domestic dye industry is indispensable to our national prosperity for five compelling reasons:

"(a) The dye industry controls the fate of three billion dollars' worth a year of American goods which cannot be made without its products.

"(b) It alone can provide and keep available in peace times an inexhaustible source of explosives and poison gases needed for national defense.

"(c) It furnished, in hostile hands, an ideal field for espionage and propaganda.

"(d) It alone can insure due progress in industrial chemistry.

"(e) It alone can provide both personnel and material needed for advancement of scientific and medical chemistry.

"DYES CONTROL THE FATE OF OTHER MANUFACTURES.—The appendix shows the enormous magnitude of the industries which cannot be carried on without coal-tar dyes and intermediates. These are indispensable for almost all of the innumerable varieties of textiles as well as for paints, varnishes, papers, inks and felts. With the exception of a small proportion of natural vegetable dyes, all of the dyes used in these industries are of coal-tar origin.

"In addition to these uses, coal-tar products are equally indispensable to pharmaceutical manufacturers and are the foundation of the one great chemical industry of purely American origin —the manufacture of the so-called condensation products, like bakelite, condensite and redmanol.

"At the outbreak of the war the small American production of a few colors was itself dependent on German supplies, since it was no more than an assembling industry putting the finishing touches on intermediates made in Germany. Not a fraction of our needs could be filled from any other sources. The entire pre-war production of Switzerland, the only other considerable dye-exporting country, had it all been available to us, would not have supplied half the quantity needed, to say nothing of the necessary variety. Many indispensable colors could be obtained from Germany alone, and only at such price as her makers chose to ask.

"It is self-evident that in this situation our consuming industries were at the mercy of the Germans, who were, in most of the lines in question, formidable competitors. By withholding supplies, by raising prices, or by furnishing inferior colors, they could at any moment have dealt us a deadly blow.

"Suppose the German textile makers had had ten years more of unimpeded Government-aided progress in export trade. Suppose that then they or their Government had intentionally and suddenly brought upon our textile makers a dye famine such as was brought about incidentally and gradually by the outbreak of the war. Where would our textile industry have been in a year's time?

"On March 13, 1915, Bernstorff, in a dispatch to his Government, stated the situation precisely. He said:

"'Serial Number 432, of March 12,

1915. It is reported to me by Hossenfelder, telegram No. 4, that the stock of dyes in this country is so small that by a German embargo about four million American workmen might be thrown out of employment.

'(Signed) BERNSTORFF.'

"Only a dye industry can provide for national defense.

"It is common knowledge that nearly all modern military explosives are coal-tar products. Less well known is the fact that a complete dye works can be almost instantly converted into an explosives factory. Materials, processes and men are all there ready to hand. Picric acid, for instance, is made by a process which, up to the final step, is the same as that which produces one of the most widely used dyes, sulphur black. TNT itself is made from a by-product unavoidably produced in excess in making several dyes. Dye chemists and dye workmen alike have the necessary technic, which can be found nowhere else."

After many details of methods usc by Germans to use the dye industry a a nucleus for their spy system, the brief concludes with the following:

"WHY THE INDUSTRY NEEDS AND DESERVES HELP.--It deserves help because the large investment now locked up in its plants represents a bold and patriotic effort by many valuable citizens to meet a national emergency.

"It needs help because the industry is up against the most formidable and unscrupulous opponent and competitor in the commercial world. The German industry, favored by nature with cheap materials, labor, transportation and technical service, and aided by the Government, has a start of forty years in the race—an incalculable advantage in knowledge and technical skill. It has always waged ruthless commercial warfare by destructive underselling, direct bribery and other corrupt practices.

"Its plants are organized on an enormous scale. In 1916 this huge industry, realizing its danger, consolidated into a single gigantic trust, organized to fight for the recovery of its foreign markets. The assets of this commercial monstrosity may be fairly valued at over $400,000,000. It will doubtless have all the aid the new government can give it.

"France and England, determined to have their own dye industries, are closing their doors to German dyes. So is Japan. Is it not as certain as anything in human experience that the German trust will stick at nothing to regain its great American market? If the American industry is left to shift for itself, it will be 'spurlos versenkt.'

"WHY NO OTHER REMEDY WILL SERVE.—Only three other remedies have been suggested—a high tariff, a strict corrupt practice act, and the application of the anti-trust law.

"The tariff will not save our industry, because the German trust is too strong and too desperate. It can still undoubtedly produce far more cheaply than we. Its resources are enormous. It is in a position where it can practically give its goods away for a year or two, if thereby it can kill off com-

(*Concluded on page* 12.)

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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

ANOTHER STEP IN THE RIGHT DIRECTION

Upon the organization of the Chemical Foundation the REPORTER took occasion to print an editorial in which this newly established institution was hailed as "a step in the right direction." From that time, which was only a short while ago, to the present the leaders of the industry have continued to step—still in the right direction. The step became a trot, and now, what with the most recent developments, including the filing of the Chemical Foundation brief with the House Ways and Means Committee, they may be said to have broken into a full-fledged sprint. The latest step appears in the form of a monster petition to President Wilson, signed by more than 2,000 American firms engaged in the industry, asking that a licensing system similar to Great Britain's be adopted legally.

It is indeed gratifying to behold the caution, and at the same time the steadiness, with which the interests of the industry have been advanced, and the wording of the present document is no exception to past performances, for in it the reasons for the action sought are presented so modestly, and withal so clearly, as to be, we believe, practically assured of favorable attention at the hands of the President.

The text of the petition follows:

"The undersigned respectfully submit that in their opinion an independent, self-sustaining American dye manufacturing industry is a national necessity; that such a dye industry cannot be established unless competition from German factories, including those in occupied territory, be cut off for a period of years; that no tariff will furnish protection against the enormous resources and unscrupulous methods of the German trust fighting to regain its foreign market, and that only a licensing plan like the British, excluding all foreign dyes reasonably obtainable in the United States, will save the new industry.

"We respectfully urge that immediate steps be taken to procure, both in the Peace Treaty and in legislation, the measures necessary to establish such a plan.

"We advocate this not merely because a domestic dye industry is essential to the independence of the American textile industry and manufacture generally, but chiefly because we believe that only through an established dye industry can the nation secure the progress in chemical education, in the application of chemistry to the arts, and, above all, in curative medicines, which are indispensable to the national welfare."

MORE ABSURDITIES

Exceedingly well-meaning, but woefully misinformed as to the recent action of the War Trade Board in establishing a committee to license importations of German dyes, is the editor of the New York *Evening Telegram* when he remarks, "It is the thin end of the wedge to restore the German dye trust here."

Continuing his lamentations, this writer wails that "our little infant industry, which, according to Government reports, is making such fine headway, is to be stifled." Further extracts from this tearful tale read: "If there ever were any engaged in dye manufacturing here, they should be heard from. Despite our democracy, we are so enamored of trust control we lose sight of the rights of self-determination of smaller industries."

The fallacies in this view of the situation scarcely need any pointing out to readers of the REPORTER, or, in fact, to even the well-informed layman. It is wholly obvious that the editor in question received word of the action so eagerly sought by all elements of the dye industry and practically all of the dye-consuming industries as well, and, without having been sufficiently "up" on the events of the past few months to see the action in its true nature as an efficiently protective measure rather than an opening of the skylight to let in floods of Hun-made dyes and chemicals, promptly went off at half-cock and produced the absurdities set forth above.

The editor is not wholly to blame, but we do wish he would be a little more certain of the facts before spreading alarm broadcast in future.

COMING PROSPERITY FOR U. S. CHEMICAL INDUSTRIES

"A period of prosperity and expansion for the chemical industries is a prediction based upon the broad view of these activities which various Government bureaus enjoy," according to Washington correspondence in the *Journal of Industrial and Engineering Chemistry*. "The vision of these officials is not being obscured by the existing dulness in the industry. They recognize this as the natural result of the period of transition. It is the consensus of opinion that the chemical industries in this country are on the threshold of an era of activity which will eclipse any estimate made prior to the war. The foregoing conclusion is based on several grounds. The domestic market in the future will be supplied almost entirely from American sources. This condition will be accelerated, it is held, by the practical certainty that a revision of the tariff will be made by the incoming Congress. Exports are certain to be on an unprecedented scale. The lessons of the war make possible greater efficiency in production. These constitute the main reasons back of the prediction, but there is a multitude of minor circumstances which are combining to the interest of the chemical industries in the United States. In their aggregate they will be potent. Just as America surprised the world in the development of automobile and rubber manufacture, for instance, the chemical industries are expected by some to take such a stride forward."

COAL-TAR DYE INDUSTRY BESET BY NEW DANGER!

Perhaps our readers may be able to extract a ripple or two of mirth—as we did—from the last paragraph of the following editorial from the Omaha (Neb.) *World-Herald*. Accustomed as it is to scenting dangers from afar, it is not often that even the lay press goes so unduly astray as this:

"The chemists are continually upsetting some industry. Their last work is the field of dyes. It is reported that a plant which grows profusely in New Zealand and can be introduced in a large part of the world, produces a dye that will become an important competitor with the dyes manufactured in Germany and which since war have been largely produced in this country. It is claimed that the dyes can be produced from this plant much cheaper than those now made. The name of the plant is "coprosma," and it belongs to the nadder family. It makes colors ranging from yellow to red, and through intermediary tints, to black. For an experiment, textiles dyed with it were subjected to outdoor exposure for a month of winter weather and only one—the yellow—faded.

"If the claims made for this plant prove to be true, it will be a benefit to the textiles industry all over the world, but it will destroy to some extent the industries which are now engaged in making dyes."

According to recent consular reports, but few transactions are at present being consummated in the Japanese dye market, and Japanese dye manufacturers and merchants are said to be trying to cancel contracts already made. In Osaka the bankers have developed extreme caution in trusting dye merchants, some of whose security has not been sound enough to save them from bankruptcy.

THE CASE OF THE DYE INDUSTRY

(Concluded from page 7.)

petition. No matter what tariff is imposed short of a duty equal to the price of domestic goods, the German price could be cut low enough to compel our makers to sell at a loss.

"Nor will anti-dumping laws suffice, even if coupled with a tariff. All such laws hitherto devised put the burden in the injured party. Often such proof is unobtainable. If our industry is to have no better shields than such legislation, it may well be killed before ever the protection becomes available. The same may be said of the anti-trust law. To prove that particular goods are the product of the trust can be made infinitely difficult. Till such proof is produced the law will not operate.

"If we do not adopt the licensing plan we shall be left alone to fight not only the German trust but the industries of the Allies. England, Japan and France are developing as fast as possible, mostly with the aid of direct Government subsidies, their own dye industries. Each now excludes our dyes, except as imperatively needed. Each will seek an export market, at the same time keeping up the bars against our products. Are we, then, to 'hold the bag'? From every point of view the licensing plan is the one safe, certain remedy which will insure to the country the permanence of the industry on which economic and scientific progress and national security depend."

"The menace of American and Japanese competition is becoming increasingly formidable," says an English trade journal in speaking of the hosiery trade, "and manufacturers in that industry, in common with those concerned in the making of lace, are now asking that substantial Government protection shall not be lacking for a considerable period after present arrangements have lapsed. The hosiery trade must have a certain amount of time to recover from the effects of the war." There is at present a British prohibition of imports of all hosiery except silk.

USE OF DYESTUFFS IN EGYPT

During the war Egyptian dyers went back to the long neglected vegetable processes, but without success. In the early summer of 1916, however, the first samples of British dyes were obtained, and their processes demonstrated at the Bulak Technical School to a few of the more important dyers. The result was an immediate and urgent order for direct cotton black and red, and sulphur yellow (Dional Yellow) for the Akhim cotton weavers. This was the beginning of a rapidly increasing demand for the new dyestuffs. The dyers, at first afraid even to try any but German dyes packed in tins labeled in the manner they had so long been accustomed to see, would not look at the British dyes packed in plain black or brown paper; but once they had been persuaded to witness an experiment and had been allowed to wash the dyed cotton they were immediately won over, and it is a tribute to the excellence of the British product that more than one Egyptian dyer has pronounced Congo red to be stronger and more fast than the German dye supplied to this market before the war.

Certain acid dyes have also been introduced specially for dyeing silk crepe, the universal outer garment of the Egyptian lady; but as yet there are not many dyers who understand acid dyeing, and for fine qualities of silk goods they prefer a long immersion in indigo and an after treatment in pomegranate skin and ferrous sulphate. The dyers are gaining confidence, however, and the market is steadily growing.—*London Times Trade Supplement.*

Advices from England state that big orders for dyed textiles are now coming to hand from the Indian and Chinese markets, and as a result of this spindles and looms are being again started in Lancashire.

With a capital of $110,000, the Midwest Dye & Chemical Company has been incorporated under the laws of Utah. Headquarters will be located in Salt Lake City.

THE DYE-GEST

THOUGHT—Almost any editor, without regard to race, color, creed or present condition of servitude, is likely to find himself famous overnight through the appearance of his remarks in this department. As long as he confines his utterances to safe, colorless topics like the various Russian revolutions or the President's activities in Europe, he may continue to dwell in his wonted state of partial or complete obscurity; once let him express, in print, an opinion about the American dye industry, however, and our eagle-eyed phrase-snatchers, lying in wait, will immediately swoop down, pounce upon the child of his intellect, and drag it, shrieking, forth to dangle it with ghoulish glee in the full glare of the pitiless, scorching gaze of the dye fraternity. It is the purpose of the publishers to give, in this way, each week a faithful reflection of the trend of lay editorial opinion, both adverse and favorable.

AFTERTHOUGHT—Forgive us for reminding you again that complete typewritten copies of editorials quoted in this department will cheerfully be sent anywhere, postpaid, for twenty-five cents per vibrant, pulsating editorial, and that carbon copies of each, up to the number of three, will be furnished at an additional cost of five cents.

THE PRESIDENT'S MESSAGE AND THE LICENSING PLAN

In the main, the daily press of the country, Republican and Democratic alike, took kindly to the reference to the dye industry contained in President Wilson's message to Congress, which says:

"Among the industries to which special consideration should be given is that of the manufacture of dyestuffs and related chemicals. Our complete dependence upon German supplies before the war made the interruption of trade a cause of exceptional economic disturbance."

In another portion of his message the President declares that the German chemical industry with which we will be brought into competition "was and may well be again a thoroughly knit monopoly, capable of exercising a competition of a peculiarly insidious and dangerous nature," and, taking this as its text, the Troy (N. Y.) *Record,* after pointing out that it, likewise, believes in protection, also warns against playing too much into the hands of the dye manufacturers, professing to see in extreme action an "equally insidious danger of creating an American monopoly disastrous to American consumers." Hence, it advocates the arrangement of "a scientific tariff scale" designed to bring justice to both producer and consumer, for, it holds, "most assuredly . . . it would be a great mistake to permit Germany to resume its monopoly, in spite of the fact that the United States is willing and eager to participate in any program calling for international disarmament."

"As to the soundness of what the President says in respect to dyestuffs and other products of skill and substance, there is no room for controversy," asserts the Brooklyn *Citizen,* which continues: "No man who is not wholly given over to the mere theories of the academic economists would think of allowing the country to become again dependent upon foreigners for any of the things shown by the war to be indispensable to the general welfare, if the capacity to produce them here has been shown, as it has been. Whatever be the thought of some other parts of the message, there will be practical unanimity on this point." This particular portion of the message, it thinks, should set the minds of all our men of enterprise at rest for the future, "so far, at least, as action by the Government is concerned." It is confident that "they need no longer worry about a possible wreckage of their business by tariff reductions," and that "it is no rash prediction to say that never again, in this generation at least, will there be any American industry of a large and legitimate kind exposed to destruction by any species of foreign competition in the American market. This is not more certainly what the President insists upon than it is what the good sense of the American people as a whole can be depended upon to make obligatory upon any and every political party."

The New Brunswick (N. J.) *News* is glad to note that the President's message contained "strong recommendations for tariff changes that will protect the dye industry." It feels that "in order to regain world supremacy in this field, Germany will seek to dump her dyes here at much less than cost, in an attempt to drive American producers to the wall and thus out of competition. This," it is positive, "must be prevented, no matter how high a tariff wall it may be necessary to erect," while the New York *Commercial,* of like mind, states that "advocates of the development of new industries in the United States regard as unthinkable that there is a probability the new Congress will not surround infant industries, made necessary by the war, with proper safeguards against such competition from foreign countries as would destroy them in their youth," and calls to mind the predictions made last winter by Dr. Taussig with the information that:

"Word comes from Washington that hostility of Republicans to protecting the dye industry has increased and menaces this new-born business, in which Americans have made remarkable progress since being compelled to manufacture our own dyes or do without any until Germany could again supply our demands. Some members of Congress have intimated that the establishing of a license system for the importation of dyes, which would protect the manufacturers in this country, was the thought of agents of a Democratic administration, and, therefore, whatever the Democrats were for the Republicans should be against."

Such a situation was wholly to have been expected, and the editor of the *Commercial* takes the sane, logical view of the matter when he continues: "Sound business men are not likely to strangle a new industry by such partisan methods." He calls for trade barriers, with the adjuration that "it is the duty of Congress to . . . make them high enough to save our infant as well as old-established industries from extinction by anything 'made in Germany.'" He concludes that "it is not a partisan proposition, but is wholly an American enterprise that should be fostered by ample protection."

The action of the War Trade Board in virtually creating a licensing board is characterized by the Saginaw (Mich.) *News* as "satisfactory news," while to this daily the committee of eight "seems to be properly balanced to get results." The New York *Commercial,* in commenting on this, declares that the War Trade Board "has shown excellent judgment," and takes some of the wind out of the sails of the pessimists by expressing confidence that "there are doubtless colors that can be brought here without in any way impairing the progress of the domestic industry, which must eventually outstrip that of any other country." The Boston *Post* feels that "as conditions exist to-day, the supply of dyestuffs required in our various industries can be measurably furnished by our own producers."

The editor of the Columbus (Ohio) *Dispatch* is frankly non-committal, and feels that progress thus far "is not the end of the dilemma." He merely sees in the situation the outstanding fact that "age-old questions are going to bob up again to vex us," and, without attempting to offer an opinion as to the wiser course, presents the subject to his readers thus:

"If Germany is not permitted to go about her business and manufacture products at which she is an expert, she will not be in position to carry out the terms of the treaty. In other words, she cannot pay what we are going to compel her to pay unless she is allowed to produce something with which to pay. Further, the consumer wants his dyes as cheaply as he can get them, and he objects to paying the American manufacturer a higher price for them if he can get them cheaper from Germany."

As a result of this lack of confidence in the patriotism and common sense of the American consumer, the Ohio editor is further impelled to remark: "So we are likely to have the same old tariff questions staring us in the face. Whether to levy an exorbitant tariff against German dyes and thereby be compelled to pay exorbitant prices for our dyestuffs, whether to allow German dyes to come in here in competition with our own American manufacturers and thereby destroy a lot of American capital and throw a lot of American workmen out of work—well, we are going to hear a lot of discussion upon the subject, to say the least."

The New York *Sun,* for once in its career siding with President Wilson on a question not directly concerned with the conduct of the late war, condemns as "national lunacy" any manifestations of slackness which might lead to letting slip those industries which we have acquired as a result of the great struggle. Not only by means of tariff laws, but by means of "whatever other action may be necessary," the *Sun* thinks, should we hold fast to our new-won advantages, and its well-worded comment on the situation, which appeared under the caption "Once War, Now Peace Industries," we herewith reproduce in full:

"Congress hearings have begun on tariff questions which should be settled straightway. While the war was on hundreds of millions of American capital went into the manufacture of dyestuffs because this country was destitute of them and could not obtain them in any other way. Hundreds of millions likewise went into potash, nitrate, manganese and magnesite products. These at the time were war industries pure and simple. Some of them were as essential to our victory abroad and to our safety at home as shells from the munition plants and ships from the shipbuilding plants.

"But, with the war over, unlike shrapnel, bayonets and torpedoes, they still are indispensable to our national security and to our national welfare. Whether by war of arms or by war of trade or by whatever circumstance, this nation of 110,000,000 people in forty-eight State groupings, some of them bigger, richer and more populous than kingdoms and republics of the Old World, must never again be caught unprepared to supply itself out of its vast resources with basic needs of industries and basic needs of food as imperatively required by our national life as the water we drink and the air we breathe.

"If, with our tariff laws and with whatever other action may be necessary, we do not preserve forever the industries which we did not possess before the war but which we do now possess in almost full perfection, it will not be merely political ingratitude; it will be national lunacy."

GERMANS HAVE DESIGNS ON ITALIAN DYE MARKETS

Details of an extremely interesting and significant situation with respect to the future of Italy's dye trade are set forth in a recent issue of the London *Times* trade supplement. The article in question is herewith presented:

"At the outbreak of war all existing stocks of dyes and chemicals that could be used for munition making were bought up by the leading Italian factories and the Government, and as the market was thus left entirely bare many local manufacturers attempted to produce dyestuffs similar to those previously sent in from Germany.

"This manufacture was attended by considerable difficulty. There was a lack of suitable raw material; the intermediates necessary were but imperfectly understood by Italian chemists, who were unable to make them with sufficient accuracy. As a result the dyes made were of poor quality, the reds and blues being particularly unsatisfactory. The attempts at anthracene blues and chrome and chlorazol blues were almost entire failures, and the only real dye made, after long experiments, was a very poor reddish black which was fast to neither light nor body acids, costly and difficult to apply, having but little affinity for the textile material.

"One of the chief troubles has been the lack of suitable machinery. There are few engineering firms in Italy with any knowledge or experience of chemical engineering work, and consequently stills, retorts and autoclaves were unobtainable. The supplies ordered from Great Britain could not be delivered for certain reasons, and, to give only one instance, the Industrie Nazionale Colori di Anilana, which was established in Milan in 1916 with a capital of 6,000,000 lire, has not been able to commence work on anything like the scale anticipated, merely because it has been unable to obtain the necessary machinery. Another and larger concern, the Fabriche Italiane Materie Coloranti Bonelli, also of Milan, has been steadily preparing for after-war production of dyestuffs, and has made no undue efforts to buy machinery at a time when it has been practically unobtainable. Feeling that the time for active trade is near at hand, this firm has increased its capital from 8,000,000 to 14,000,000 lire.

"In addition to these two large companies, there are a number of smaller manufacturers who are anxious to engage in the manufacture of aniline colors for dyeing and printing ink work, and there would seem to be a very good prospect of business in chemical engineering circles. What are wanted are fused silica products, acid-resisting electric cables, refrigerating machinery, washers, compressors, plants for sulphuric acid concentration, steel bottles and cylinders, gas scrubbers, kneading machines, vacuum dryers, exaporators, tar stills, pressure filters, acid-resisting stoneware, superheaters, decomposing pans, caustic pots, claus kilns, nitric acid stills, centrifugal machines of all sizes, large cast-iron tanks, autoclaves, denitration and absorption plants, and mechanical roasting furnaces for dealing with the local pyrites. So far there has been little or no attempt on the part of the chemical engineers of any other country to show the Italians that chemical plant of high grade can be obtained at reasonable prices from other than German sources.

"It would seem that German chemists and engineers are well aware of this fact, and are prepared to go to any lengths in connection with the giving of credit, and are even open to finance manufacturers who are handicapped by want of capital."

Fred a Brassard has taken over the aniline dye and chemical business of the Fabra Company, Ltd., London and Manchester, and will conduct it under his own name, while the aniline color business, including the selling office of Fred a Brassard & Crawford, will be continued.

INQUIRY DEPARTMENT

All classes of chemical work or advice relating to artificial colors, natural dyestuffs, dyewoods, raw materials, extracts, intermediates, crudes, or dyeing chemicals and accessories in general, will be carried out for readers and subscribers of the AMERICAN DYESTUFF REPORTER by this department.

Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

M. P. W.—Question—We are forwarding you a sample of emulsion which please submit to careful chemical analysis, and let us know results at earliest possible date.

Answer—The sample is composed of an emulsion of oil in a very concentrated solution of potash soap. This product is used by the dyer as a softener for cotton goods. Lack of space prevents giving full details here; we are forwarding same to you by mail.

NOTES OF THE TRADE

Aniline Dyes & Chemicals, Inc., New York City, has been appointed sole selling agent for the dyestuffs manufactured by the Dow Chemical Company, Midland, Mich.

E. W Pierce, who was for some years chief chemist of the U. S. Conditioning & Testing Company, and later vice-president of the Zobel Color Works, has accepted a position in the dyestuff department of E. I. du Pont de Nemours & Co., Inc., and will for the present be located at the Wilmington works.

Plans have been completed by H. Kohnstan, 537 Columbia Street, Brooklyn, N. Y., manufacturer of colors, for the erection of a new one-story reinforced concrete factory and warehouse, 60 x 100 feet, at the corner of Creamer and Columbia Streets, that city. The cost will be about $20,000, and the work will be done by Post & McCord, New York.

A quarterly dividend on common stock, payable July 1 on stock of record June 16, has been declared by the Barrett Company, which has also declared a quarterly dividend of 1¾ per cent on preferred stock, payable July 15 to stockholders of record June 30.

With a capital of $11,000,000, the Synthetic Coal & By-Products Corporation, of East Orange, N. J., has been incorporated under the laws of New Jersey. The incorporators are J. B. Bay, B. J. Cummings and Charles Herzog, all of New York City.

With the object of furnishing the British textile trade with an example of the kind of competition they will have to meet in future, an exhibition of textiles and related materials manufactured and exported by Japan, Germany, Italy, Austria and France was recently held on the premises of the Manchester Chamber of Commerce. Some of the exhibits of enemy origin were captured at sea during the war by the British.

Work of rebuilding the plant of the Hellenic Chemical & Color Company, Inc., at 1 Cedar Street, New York, has been begun and will be completed as rapidly as possible. The office and warehouses of this concern were recently destroyed by fire, due to a short circuit in the basement of the building. Temporary offices for the company are located at 240 Broadway.

With damage estimated to be in the neighborhood of $750,000, the old-established dye works of P. & P. Campbell, in Perth, England, were completely destroyed by fire recently. Many explosions accompanied the progress of the conflagration, but none of the workers were in the building at the time. The fire is said to be the largest which has ever occurred in Perth.

The William T. Miller Aniline & Chemical Company, Inc., has been chartered under the laws of New York to deal in chemicals, dyes, explosives, etc. The capital is $50,000 and the incorporators consist of W. T. Miller, late of the National Aniline & Chemical Company, Inc.; G. F. Miller, 1377 Lexington Avenue, New York City, and E. A. Zillessen, Passaic, N. J.

DABBS GOES TO DU PONT

E. I. du Pont de Nemours & Co., Inc., announce the opening of a Charlotte office of their dyestuffs sales department at 232-234 West First Street, Charlotte, N. C., post-office box No. 315.

John L. Dabbs will be in charge of this office as sales manager. Mr. Dabbs is one of the best known dyestuff men in the Southern field. For many years he was in charge of the Southern territory for A. Klipstein & Co., and during the past two or three years has been in charge of the Charlotte office of the National Aniline & Chemical Co., Inc. He has a host of friends throughout the Southern field who will, we feel sure, join with the REPORTER in wishing him every success in his new connection.

AMERICAN DYESTUFF REPORTER

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By One Closely Identified with American Dyestuff Manufacture for Ninety Years.

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AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
"Circulated Everywhere Dyestuffs are Used"

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THE FUTURE OF AMERICA'S DYES

A Brief Summary of the Development of the Dyestuff Industry in America and a Prognosis for Its Future Written by a Man Who Has Been Identified with Our Most Prominent Manufacurers for 20 Years

AMERICAN dyestuff manufacture is now starting a new chapter in its history. Many are anxious to know what will be the outcome. The users of dyes, the dealers in dyed goods and the ultimate consumer on one hand, and the maker of American dyes on the other, look at the subject from their own points of view, while the daily press, in a generally optimistic tone, dispenses technical information for popular consumption.

We have reached a point in the history of dyestuff manufacture where we may summarize the past and also give a reasonably accurate prognosis of the future. Much of the past is generally known, but for the sake of completeness of the record it may be lightly touched upon.

The first or pre-war stage of dye making in America was dependent entirely on German intermediates. At any time it was in the power of Germany to restrict the export of the intermediates and put an end to the entire industry, if they wished to do it. Fortunately, they refrained from doing so in general, but when the manufacture of aniline oil was commenced in this country they at once cut the price so that it was unprofitable to manufacture it here. One American dye manufacturer, however, made a contract with the makers of the domestic product at a price above the German price. The reward came in an unexpected form, for when the shortage arose after the war some of the contracts were still in force and were filled at 12 cents, while the rest of the consumers paid as high as $1.25 per pound on the open market. It is needless to recount the methods of competition used by the Germans, for they are generally known. Protective legislation was unobtainable and all forms of propaganda were active, although we did not recognize it as such at the time.

Despite the conditions, several factories continued to exist, and if they did not exactly flourish they remained in the field and gathered much experience in the final manufacture of many dyes, which consisted really in assembling the intermediates. In some cases it was even possible to produce dyestuffs that were a trifle better than the corresponding imported product. The development of the industry was, however, necessarily limited by its dependence on foreign sources for the intermediates and the reluctance of our government to attempt any adjustment of the conditions. Just a few months previous to the war there came a sharp onslaught of price cutting which in its way was like the drive at the Marne. A few months of this and the Germans would have had a clear field, but the war intervened.

The next chapter belongs to the dyestuff broker. He sprang up like a mushroom overnight and made the most of his opportunities. The legitimate dyestuff dealers in general treated their old customers fairly and did not attempt to take advantage of the rising prices as long as their stock lasted. The few cargoes brought over in the *Matansas* and *Deutschland* helped to keep up the supply, but nevertheless sold for fairly high prices. In the meantime the new brokers had their agents scouring the country for odd lots hidden in dark corners of dyehouse drug-rooms. These were bought at almost any price, on speculation, reduced even to emaciation and anemia, and resold at handsome figures. The dyer soon had nothing to use except such goods (if one dare call them "goods"). These were German-made dyes and were used in any way the dyer might fancy. Cheap, unsuitable dyes, reduced and sold at fearful prices, were put on expensive fabrics without regard for fastness or suitability; and, remember, *they were German, not American!* The storekeeper was advised to put up a sign warning his customers that "on account of the quality of American dyes the fastness of the colors cannot be guaranteed." The larger of the American dye manufacturers went into the manufacture of intermediates and covered themselves by contracts with as many dyers as would make them, for several years, at what were thought to be very high prices. If they really thought the prices high it made little difference, for many contracted in excess of their needs and resold the surplus to the brokers, who could not buy from the manufacturer. The brokers then in turn took a princely profit from such consumers as had hesitated in contracting, thinking the war would end very soon. The pre-war price on Direct Black (the feature color of this episode) was 24 cents, the contract price was 90 cents, while the brokers often got $3.50 to $4 per pound. Between the brokers themselves lots of dyes were passed about for weeks, gaining in weight and losing in strength, and only being sold to a consumer when it had become a "drug on the market." The profits made by the brokers in this period and the injury done to the cause of American dyes in the public mind were equally great.

Partly overlapping this last period came the next one, devoted to the small intermediate and one-dye factory. Many of these factories were wonderful examples of what could be done with a junk pile by a recent graduate in chemistry. They made good intermediates, good dyes and good money, but let us say nothing as to the efficiency of the plant or the percentage yield. If they obtained 50 per cent of the ordinary practical yield they still made money. Many of them were soon able to get better apparatus and enlarge, increase their yields and add new products to their output.

Later in this period a number of larger enterprises got under way and manufactured dyes and intermediates very practically. Some were offshoots of consumers who first made dyes for their own consumption and later sold the excess. The producers of intermediates increased in number and the quality of their goods attained a high mark; the explosives manufacturers had their plans well under way to turn over their organizations to the new industry as soon as the demands of war would permit. Plans had been discussed at Washington to properly protect the industry, but nothing had yet become a fact. Then came the armistice and the present moment—and it finds us seriously contemplating the future.

There are two classes of people who are to be distrusted in their opinions of the future: the optimists and the pessimists. The first class cannot see trouble when it is staring them in the face, while the others see nothing else. Fortunately, the truth is often to be found between these two points of view, and that is where we hope to find it in this case.

Let us take an account of stock at the present moment and see what the industry has in the way of assets, then let us study the liabilities and finally see if we can determine what events of the future are likely to influence matters one way or the other.

We have among our assets—

Seventy-seven factories producing 57,155,600 pounds of dyes annually.

One hundred and twenty-seven factories producing 354,808,315 pounds of intermediates annually.

Twenty-six thousand two hundred and seventeen men who are experienced in the business.

Full information on the colors not yet made here.

Chemists and colleges to supply more.

Land, capital, labor, business organization, transportation facilities and a market for the products.

We have against these—

Foreign competition.

Strikes and labor problems in general.

Local need of capital.

Carelessness and inefficiency.

Possible adverse legisation.

The statistics are furnished by Government reports which give a detailed synopsis of the present scope of the industry and which should be read by all who are interested.

The mere fact of a plant being in operation at the present time and making one or more dyes does not necessarily make it a factor in the future of the American dyestuff industry. It may still be running on the momentum acquired in the days of old. Most factors that will count in our future commercial warfare must stand the following tests:

They should have sufficient capital to meet all demands and be prepared to make capital investments without having to consider returns for an indefinite period. It has been proven that our recent enemies made it a matter of principle in their factories to first attain the result, regardless of the means or the expense, then later increase the efficiency and reduce the expense if possible, but in no case to let these things impair the result. Unless our American factory is prepared to adopt such a course it stands a chance of being counted out of the race. Standing still and holding its own will not do; it must make progress and hold the pace set by its American as well as foreign competitors. Invested capital will soon become a liability instead of an asset, because it calls for more production; more production may result in overproduction, as it has in several cases already—yet if the full capacity of the plant is not utilized the general overhead becomes an unbearable burden. Some of the present manufacturers counted on the amortization of their plants out of war profits, but the Government took the excess profits in taxes instead and somewhat upset their calculations. This state of affairs puts a handicap on the largest existing factories, but gives an opportunity to the others to develop cautiously as trade conditions warrant.

Information concerning pre-war methods of manufacture is much more complete than the general public suspects. It was believed that there was a great secret connected with the making of dyes and this was in the hands of the Germans. The only secret apparently was almost infinite patience, and that is as much American as German. At present the patents taken out in America, photographic copies of the original German patents and in most cases the working formulas of the commercial dyestuffs are in the hands of American manufacturers and have been checked up by laboratory trials. The public does not understand that an immense amount of work and expenditure of money, to say nothing of time, is still necessary before they can be put on the market. Furthermore, it is inadvisable to proceed too recklessly until we are more certain of the future.

It was formerly thought that there was no real chemist but a German chemist. The war has shown the fallacy of that belief in a very striking way—the Germans, too, will admit it was striking. The country has an abundance of good dye chemists today, but they were developed under stress. We will need a new lot every year hereafter, not only bespectacled bookworms but a lot of active, bright, regular fellows, with their common sense and initiative well developed. The colleges must be made to see the need of this type of chemist and to give him opportunity to work along this most necessary line. The result will be that the near future will see the origination of many new classes of dyes in this country which may supersede those we formerly imported. This may be nothing but a hope, but we are really justified in expecting as much from our chemical inventors as from our world-famous mechanical men. The American chemist never had half a chance till the war gave it to him, but he has shown that he need take second place to no other in the world.

Need there be anything said concerning the last group of our assets? Land, capital, labor, business organization, transportation facilities and the market for our products are all things in which America stands ahead of all competitors. Not every individual factory has command of a full share of these essentials, but they exist in abundance and must be made a part of the factory that intends to stay in the fight and succeed.

The one great opponent we must face soon is foreign competition. We hear much now about how Germany has kept her dye factories intact and even kept the personnel undisturbed; how they have stored vast stocks of the very things we need, and how they are prepared to unload them here as soon as our generous government will permit them. It looks more hopeful to-day than ever before that a licensing board will be established. We have hope of adequate tariffs and there may even be a revision of the patent law. If these things become accomplished facts we need fear nothing from Germany, nor from England. In former years all arguments for a high tariff were founded on a comparison of the high wages paid labor in this country as against the wages in England and Germany. To-day, with the depleted male population and war taxes in those countries, such a condition can hardly be a weighty factor. The conditions are more favorable than ever at Washington that the industry will be given proper protection, and we may assume that the industry will not be subjected to any form of unfair competition. Whatever competition there is will be domestic.

The labor question will undoubtedly be one of the greatest problems we have to handle. German discipline extended to the factories, and by their system they were able to get a full return for the wages paid labor. In this country the tendency seems to be for the laborer to become very self-important as soon as he has learned what he considers a responsible job. The greater the responsibility the more likely he is to use it against his employer. More men are demanded for any given piece of work than would be tolerated anywhere outside of Japan, and when the employer attempts to get his just dues

(*Continued on page* 12.)

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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

THE PALMER-GARVAN ACCUSATIONS

Despite the fact that the more or less familiar subject of prohibition is commanding a vast deal of space in our public prints, the dye industry is likewise coming in for no small amount of attention these days. "Infant" industry indeed! When it comes to being a live topic for general discussion—and even high school graduating class oratory—the dye industry is fully able to "step out" with the best. We have our vociferous opponents and our ardent supporters, our public hearings, our vital issues, our place in the Congressional sun and, in short, everything that a regular, sure-'nough industry could wish for. And just to round out the perfect program, we even have our own private scandals and muckrakings. Who, in the hectic days of 1914-15, would have believed it? Who? we ask, and make haste to boldly answer: No one—or anyone else!

But in regard to what some will hold to be the single blot upon our 'scutcheon—our own pet scandal—this is indeed no matter for laughter. Truly, it isn't one bit funny. Representative J. Hampton Moore has arisen upon the floor of Congress and bitterly assailed Attorney General A. Mitchell Palmer, who used to be Alien Property Custodian hereabouts, and likewise sailed into one Francis P. Garvan, the present incumbent. During the course of his horrid revelations Mr. Moore asked some exceedingly embarrassing questions. Anyone could tell from his way of asking them that they just couldn't help but be mighty embarrassing.

He began artfully by objecting to the appropriation of $500,000 for the detection of the bomb-throwing gentlemen who have been spreading terror and TNT impartially around the country. Nobody thought he was going to say a word about the dye industry when—bingo! He came right out and told everyone that Mr. Garvan, as Assistant Attorney General, and Detective William J. Flynn, were appointed to conduct the investigation by Attorney General Palmer, who used to be Alien Property Custodian—which Mr. Garvan now is—and that furthermore Alien Property Custodian Garvan was elected president of the Chemical Foundation, Inc., "controlling the dye industries of the country," through the machinations of Mr. Palmer when he himself was Alien Property Custodian—which Mr. Garvan now is—and Mr. Garvan was Assistant Alien Property Custodian.

The speaker wanted to know *why*. He wanted to know why Mr. Garvan had stepped into Mr. Palmer's shoes. And he wanted to know who were the organizers and officers of the Chemical Foundation. Were they dye makers? Not so. They were financiers—some of them very large financiers, too. And he wanted to know how they were ever going to apprehend the bomb-throwers if Mr. Flynn devoted a large part of his time to writing magazine articles and Mr. Garvan was president of the Chemical Foundation—"capitalized at $500,000 for the purpose of engaging in the manufacture of dyestuffs."

By this time, we take it, those who stood by Mr. Palmer and Mr. Garvan in their hour of trial must have been getting pretty red behind the ears, and no doubt several faces were partially averted in guilty trepidation and an indeterminate number of shoes were probably scuffled nervously over the well-oiled floor of the House.

However, we need go no further. Leaving Mr. Flynn out of the question entirely, it is hardly necessary to repeat the well-known facts that neither Mr. Palmer nor Mr. Garvan are interested financially in the Chemical

Foundation, nor did they at any time draw salaries for their activities in connection with this organization. Friends of both these gentlemen were present who made all this plain—this and the true nature of the Chemical Foundation, with which our readers are far too familiar to require burdening with further descriptions—and likewise the reasons why men other than dye makers were chosen to direct the $500,000 corporation. This is not the first time that Mr. Palmer has been heckled in this manner (last March saw Senator Calder's premature demand for information supplied later on in Mr. Palmer's report, which at that time had not quite been completed) and the REPORTER merely wishes in passing to reiterate its expression of confidence, made at that time, in a highly efficient public servant.

The point is that the whole affair looks enormously like political maneuvering and that it comes at a rather critical time. This, of course, was just the time when something of the sort might have been expected; it would be a case of now or never with those who seek to jeopardize the chances of the licensing plan now under consideration by the House Ways and Means Committee, and while we are not convinced that this is necessarily the end desired by the instigators of the attacks, neverthe less there is always the danger that opponents of the plan will make political capital of it.

In calling attention to this, we feel that our readers are fully qualified to go ahead and finish this editorial for themselves.

THE FUTURE OF AMERICA'S DYES

(*Continued from page* 9.)

from the laborers he is denounced as a slave-driver and soon has a strike on his hands. The return of our overseas troops may change the labor situation somewhat, but it seems that it will always remain the most uncertain factor in our industries.

The importance of abundant capital was mentioned before, but is now referred to again as one of the conditions that will act against the survival of any particular factory. For a small factory to compete with the larger ones demands just as much supervision and laboratory control, which, together with other incidentals, make the overhead too great in proportion. A few spoiled batches instead of being mere incidents are looked upon as calamities. Things which to the large factory are as but waves against the side of an ocean liner seem to fairly overwhelm the small manufacturer, and, if nothing more results, they destroy the morale of his organization. The future of the industry will probably see it concentrated in the hands of companies with abundant resources and, possibly, a pool of the smaller manufacturers, because the conditions which made it possible to operate on a small scale have ceased to exist and the reaction is now only a question of time.

During the war the need of dyes of any kind was so great that the trade would accept almost anything gladly and make no complaint of the quality. Those days are past and there is now an obligation on the manufacturer to deliver standard goods of as high quality and concentration as were furnished by the Germans before the war. The relatively high prices are excused, the lack of variety is tolerated, but it is now demanded that all shipments be of uniform quality. The firm that does not recognize this need and conform to it will likewise soon be eliminated.

Adverse legislation is not expected, rather the contrary. Our foreign competitors may lay restrictions that will affect our export trade, but we have the remedy of retaliation. Taxes have in all probability reached their maximum, so that this last counter-influence is of little force.

MOTION PICTURES TO PLAY PROMINENT PART IN CHEMICAL SHOW

The week of September 22, when the Fifth National Exposition of Chemical Industries will hold forth in the Coliseum and First Regiment Armory, Chicago, will be a week of convocation of societies in the Windy City with the exposition.

The American Institute of Mining Engineers will occupy the stage for the first part of the week, American Ceramic Society meets on Wednesday, September 24, the American Electrochemical Society on Thursday, Friday and Saturday, the 25th, 26th and 27th, the Technical Association of Pulp and Paper Industry on the 24th, 25th, 26th and 27th.

There will also be among the interesting features of the exposition program a symposium upon "Safety in the Plant and Mine," with speakers of authority under the chairman ship of M. L. Leopold, Safety Engineer of the U. S. Bureau of Mines, and in the evening after this meeting—which will occupy an entire afternoon—there will be shown a series of motion pictures of safety work in plant, field and mine—pictures now being made in industrial plants all over the country under the supervision of Government agents.

The motion picture program will consist almost entirely of films now being made and the completion of which will be hastened to be ready for the initial showing at the exposition.

Even in motion picture as in all important improvements in plant machinery and products, the exposition is outstanding as the place of introduction to the public of the newest and most recent developments. Each improvement of the projectoscope in motion picture projection has been reserved for first public demonstration at the exposition and again this year will have the latest developments in this field of endeavor.

There have been many developments in the way of new exhibits that are engaged for the exposition, noteworthy among which will be a group electric furnace exhibit in full operation.

THE DYE-GEST

A department which aims to reflect and epitomize editorial comment appearing in the daily press of the nation, which concerns the American Dyestuff Industry. Complete typewritten copies of any of the editorials which are extracted here may be had for a charge of twenty-five cents each.

PROTECTION AS PREPAREDNESS FOR THE NEXT WAR

While the House Ways and Means Committee of Congress continues its consideration of the Longworth bill and the proposal to place in effect a licensing system here for the protection of our dye industry, it should be a source of gratification to those favoring this measure to note the manner in which the daily press of the country is calling attention to the explosives and poison gas features of the industry. The question of protection for any industry for purely economic reasons will always be debated and opposed by the free trade element here, but the question of preparedness at once lifts the dye industry out of the class of a mere business for profit, and places it in its rightful category of a thing apart. And in the minds of many, who would otherwise be unconvinced or indifferent, this will unquestionably be the final argument in enlisting their open support.

Foremost in calling attention to the significance of these phases of the industry is the Philadelphia *Inquirer,* which quotes liberally from Major General Sibert's recent address before the committee in Washington, and, also referring to the economic side of the question as well, backs up that officer as follows:

"Thus we have two very good reasons for passing the legislation which is being urged before the Ways and Means Committee. The business of protecting a young industry is understood by all; the value of that particular industry in time of war is not so generally recognized. In the days that are gone we learned from bitter experience the dangers of unpreparedness. We cannot afford to repeat that experience. But in the future it is going to require a different kind of preparedness. Some things may be in doubt, but it is as certain as anything can be that new wars, if they come, will be chemical wars."

The Saginaw (Mich.) *News* declares that "it will not do Americans any special harm to remember that when the war upset everything so terribly there was much of real annoyance caused in this country by the lack of dyes of almost every kind. Here was another case where American capital, American skill and American patriotism were called to the rescue, and called loudly. The rescue was effected in style . . ." This effort should not be lost, the Michigan daily believes, and it states positively that it "must be always borne in mind when considering what shall be done to make American industry safe from the conscienceless attacks which will assuredly be made." that "Germany was as ruthless and treacherous in the trade affairs of peace as in methods of making war."

A Southern newspaper, the Raleigh (N. S.) *News-Observer,* feels that there should be a certain amount of gratitude shown the dye makers for their efforts in the face of serious obstacles. The latter gentlemen, it says, "are wondering if their rescue of the textile and other manufacturers is to be a job in which gratitude is the first thing and forgetfulness the next." It admits that "possibly American dyes are not yet as good or as cheap as German dyes will be," but declares that "in that event this country should stand by the American dye maker with such encouragement as will warrant him in going on with his experimental work until he makes dyes as good as any that can be found any place." The writer concludes that "war may be ended, or it may not, but we know that we do not want to depend on Germany in the future for the things we can make for ourselves if we can make them at a reasonable cost. . . . It is a matter for the people. If they will call for American dyes and stay with the American dye maker, he will survive unless there is some unexpected economic reason why he should not. That is hardly worth while to consider until it is shown."

While willing to make concessions to the principles of the Democratic party as regards the tariff, the Los Angeles *Herald* is emphatic in its support of protective legislation. It says: "The President's attitude on a tariff on dyestuffs and chemicals is, in our opinion, sound, and ought to be adopted by members of Congress, no matter what their general tariff views may be. Even conceding to Democrats the general principle of a tariff for revenue only, still it ought to be clear in the light of experience from this war that a nation must be absolutely self-sustaining in order to be safe in war."

Those who would oppose the protection of the industry are taken to task by the Fort Wayne (Ind.) *Journal-Gazette,* which feels that the President's recommendation contained in his message to Congress is "causing more dissatisfaction than pleasure in the camp of the champions of the tariff." This it deplores, and rallies its readers to the support of the proposed legislation with the assurance that protection need no longer be continued after the dye industry has gained a footing, and that argument in favor of such legislation "is not undemocratic doctrine," but "is the policy of common sense."

The latest utterance from the New York *Times* shows that its editor finds "rather disquieting in its way" the new report of the tariff commission, just published under the title "Dyes and Related Coal-Tar Chemicals, 1918." Because this report (to be reviewed in next week's REPORTER) sets forth the fact that most of the increase in the quantity of dyes produced here consisted of the easily made sulphur colors, and indigo, the New York writer draws the conclusion that our dye makers have been following the line of least resistance and greatest profits, and neglecting the important vat colors in their feverish chase after the almighty dollar. "It will be a pity," he declares at the conclusion of his somewhat pessimistic article, "if the dye concerns show any disposition simply to pile up profits under a system designed to keep out foreign dyes, and do not strain a point to produce colors whose making is more difficult and out of which they cannot hope to make as big profits as they can with those they are now producing"

Herman A. Metz, however, has something to say about vat colors, too, and his recent remarks, as printed in the New York *Tribune*, are herewith given in full·

"We can make anything on earth—everything that can be evolved by the human mind—and just as well, too, as others can perform similar tasks.

"But there are certain so-called vat colors of special fastness for skein dyeing that it does not at present pay us to make in this country, only small quantities of these colors being used here. My idea is that such colors should be imported under licenses to be issued by the government, which would be able to measure the needs of the cotton textile industry and then regulate the volume of imports.

"As I see the situation, the man who manufactures and dyes cotton and woolen goods should be permitted to obtain these vat colors at the lowest possible cost until American chemists can produce them on a competitive price basis. It will take time for our chemists to develop efficient methods for producing these fancy fast shades.

"If the American textile industry is compelled to use high-priced domestic vat colors, the finished dyed fabrics are likely to be imported in volume. In that event the cotton and woollen industries would be subjected to extraneous competition, thereby defeating the avowed object of tariff protection."

To manufacture, dye and bleach all textile fabrics and yarn, the Peerless Silk Dyeing Company has been incorporated under the laws of Pennsylvania with a capital of $50,000. Headquarters of the new concern will be located in Philadelphia.

Wear and tear of clothing of workers engaged in dyeing and kindred trades is the reason given by the Amalgamated Society of Dyers, Bleachers, Finishers and Kindred Trades, of Lancashire, England, for its application for deductions to be made from income tax assessments.

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Inquiries of a minor character will be answered on this page, while major matters involving personal investigation, analyses, perfected processes and working formulas, will, if desired, be treated confidentially through the mails. All questions, materials for analysis or letters leading to the opening of negotiations for special work will receive prompt attention if addressed to Inquiry Department, American Dyestuff Reporter, 470 Fourth Avenue, New York City.

C. J. C.—Question—From where are the Braziletto woods obtained?

Answer—These are what are termed Braziletto and Bahamas red dyewoods, and come from the West Indies as well as Central and South America. They are also known as *Caesalpinia bahamensis, and C. echinata.*

W. I. T.—Question—In the vulcanization of rubber, are any coal-tar products used accelerate the process?

Answer—Yes, in recent years the following intermediates have been used for this purpose: Anilin, Nitrosodimethylanilin and Phenylenediamin.

C. B. S.—Question—Kindly give me the general method for the preparation of nitroso-compounds.

Answer—These are prepared by the oxidation of aliphatic or aromatic amines. The oxidation is carried out with the aid of what is known as Caro's acid (monopersulphuric acid)

V. S. T.—Question—How can I prepare a bath of indigo-white from indigo, by reduction?

Answer—Mix the indigo with water. Warm to 60 deg. C. with a solution of calcium hyposulphite, and in a short time a concentrated solution of indigo-white will result. Dilute this with water and the bath is ready for use.

M. J. W.—Question—We wish to prepare Paraleucaniline. Can you give us an outline of the process?

Answer—Oxidize one molecule of P-toluidine and two of Anilin by means of nitrobenzene. The color base dissolves in acids, forming a red dye. It is transformed by reduction with zinc dust and hydrochloric acid into the Paraleucaniline.

W. W. N.—Question—Please give me the chemical name for the color known as Crystal Violet.

Answer—Chemically this color is Hexamethyltriaminotriphenylmethane. It is one of those dyes which slowly become colorless in strong alkaline solution, and the color base is looked upon as a pseudo-base.

NOTES OF THE TRADE

The P. C. Silk Hosiery Mills, Inc., has been incorporated under the laws of New York, with a capital of $100,000, to manufacture hosiery. Headquarters of the new company will be in New York City.

To manufacture colors and chemicals, F. A. Reichard, Inc., has been incorporated under the laws of New York with a capital of $100,000. The head offices of the concern will be in New York City.

The Atlantic Dyestuff Company announces that the rebuilding of their works at Burrage, Mass., which were destroyed by fire last February, has now proceeded sufficiently to permit them to resume the production of Sulphur Black. This product was previously manufactured by them in a very considerable quantity and was noted for its exceptionally high standard of quality.

The Rodgers Hosiery Company has been incorporated at Philadelphia, Pa., to manufacture and sell hosiery, knit goods and kindred articles. The capital is announced at $30,000.

With a capital of $20,000, the Crescent City Dye Sales Company, Inc., has been chartered under the laws of New York to manufacture dyes, etc. Headquarters of the concern will be located in New York City.

Bleaching, dyeing and printing of cotton, wools and silk will be performed by the recently incorporated French Dye Works, of Providence, R. I. The capital of this concern is announced to be $50,000.

Venasan, Inc., New York, has been incorporated, with a capital of $25,000, to manufacture chemicals and allied products, by H. H. Canter, J. M. Gottesman and M. L. Leplin. Headquarters will be in New York City.

With an authorized capital of $2,000,000, the British-American Chemical Company has been incorporated under the laws of New Jersey as the British-American Chemical Corporation. The stock is divided into 175,000 shares of common and 25,000 shares of preferred, par value $10. Newman Erb has been elected chairman of the board of directors.

With a capital of $100,000, the Rodrian Products Company has been incorporated under the laws of New York to deal in drugs and dyestuffs. The incorporators consist of J. Vogl, C. Bayer and A. Stamm, and headquarters will be located in Manhattan.

With a capital of $10,000 W. F. George Chemicals, Inc., has been incorporated under the laws of New York. Headquarters will be in Manhattan and the incorporators are W. F. George, F. Nickerson and C. B. Hughes.

The General Chemical Company has declared a quarterly dividend of $1.50 on stock of record June 18, payable July 1.

With a capital of $50,000, Perfect Silk Mills has been incorporated under the laws of New York to manufacture silk and cotton goods. Offices will be in New York City and the incorporators are Constantine Gabriell and Kareem Devaag, 387 Fourth Avenue, that city.

A plant of 1,152 spindles to make worsted yarns will be equipped by the newly incorporated Rhode Island Worsted Yarn Company. The capital of the new concern is $3,000 and the plant will be located in Providence. Officers are George B. Bieber, president, and Frank Mackie, treasurer and manager.

To manufacture chemicals, dyes, etc., the Ace Products Corporation has been incorporated under the laws of New York with a capital of $50,000. Offices of the new concern will be located in Manhattan.

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